1981

Oral and Written Linguistic Indices of Deception During Employment Interviews.

Kittie Wells Watson
Louisiana State University and Agricultural & Mechanical College

INFORMATION TO USERS

This was produced from a copy of a document sent to us for microfilming. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help you understand markings or notations which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure you of complete continuity.

2. When an image on the film is obliterated with a round black mark it is an indication that the film inspector noticed either blurred copy because of movement during exposure, or duplicate copy. Unless we meant to delete copyrighted materials that should not have been filmed, you will find a good image of the page in the adjacent frame. If copyrighted materials were deleted you will find a target note listing the pages in the adjacent frame.

3. When a map, drawing or chart, etc., is part of the material being photographed the photographer has followed a definite method in "sectioning" the material. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.

4. For any illustrations that cannot be reproduced satisfactorily by xerography, photographic prints can be purchased at additional cost and tipped into your xerographic copy. Requests can be made to our Dissertations Customer Services Department.

5. Some pages in any document may have indistinct print. In all cases we have filmed the best available copy.

University
Microfilms
International

300 N. ZEEB RD., ANN ARBOR, MI 48106

WATSON, KITTIE WELLS

ORAL AND WRITTEN LINGUISTIC INDICES OF DECEPTION DURING EMPLOYMENT INTERVIEWS

The Louisiana State University and Agricultural and Mechanical Col. PH.D. 1981

PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark __√__.

1. Glossy photographs or pages _____
2. Colored illustrations, paper or print _____
3. Photographs with dark background _____
4. Illustrations are poor copy _____
5. Pages with black marks, not original copy _____
6. Print shows through as there is text on both sides of page _____
7. Indistinct, broken or small print on several pages __✓__
8. Print exceeds margin requirements _____
9. Tightly bound copy with print lost in spine _____
10. Computer printout pages with indistinct print _____
11. Page(s) _____ lacking when material received, and not available from school or author.
12. Page(s) _____ seem to be missing in numbering only as text follows.
13. Two pages numbered _____. Text follows.
14. Curling and wrinkled pages _____
15. Other _____

ORAL AND WRITTEN

LINGUISTIC INDICES OF DECEPTION DURING EMPLOYMENT INTERVIEWS

A Dissertation
Submitted to the Graduate Faculty of
Louisiana State University
in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy
in
The Department of Speech

by
Kittie W. Watson
B.S.Ed., University of Georgia, 1975
M.A., Auburn University, 1977
August 1981

TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

This study was designed to find preliminary information concerning differences between oral and written linguistic indices of deception during employment interviews. It was predicted that: (1) oral messages would be characterized by significantly different linguistic indices than written messages, (2) truthful messages would be characterized by significantly different linguistic indices than deceptive messages, (3) male responses would be characterized by significantly different linguistic indices than female responses, and (4) individual question responses would be characterized by significantly different linguistic indices than other individual question responses.

Thirty one male and 42 female students in undergraduate business and professional communication courses participated in oral and written employment interviews. The transcribed and coded responses were analyzed with the Syntactic Language Computer Analysis program. The data were analyzed with a four way analysis of variance with repeated measures and a stepwise multiple discriminant analysis programs.

The results from the statisitcal analysis supported each of the nul hypotheses. Deceptive messages were characterized as having significantly more total word usage, positive existential density, negative authority perception, positive audience perception, defined relational density, and less past time densities than truthful messages. Comparing these results with the mode (oral or written) used and the sex of the interviewee revealed several interesting relationships. Deceptive written responses were characterized by significantly more negative authority perceptions and total words. Deceptive oral responses were characterized by significantly more positive audience perceptions and defined relational densities. The results also suggest that females used more words when writing deceptively, whereas males used more positive audience perceptions when speaking deceptively. The results provide a foundation for further research investigating linguistic indices of deception during employment interviews.

CHAPTER I.

INTRODUCTION

Research focusing on the relational nature of communication has investigated both verbal and nonverbal behaviors that influence the formation, maintenance, and termination of relationships. Communication journals abound with articles investigating such areas as interaction sequences, word usage, communication apprehension, and self-disclosure. Recently, increasing attention has been given to the role of deception during communication.

Most research investigating the role of deception during communication has concentrated on the abilities of individuals to distinguish between truthful and deceptive messages. Recently, increased attention has been given to the analysis of nonverbal behaviors during deceptive communication, but relatively few investigations have attempted to examine language usage during deceptive communication. Since nonverbal and verbal behaviors both contribute information about deception, currently, there is a need for research investigating linguistic indices of deception.

Statement of the Problem

The purpose of this study is to determine differences between intentionally deceptive and intentionally truthful messages during verbal expression. Specifically this study will attempt to isolate linguistic indices of deception in oral and written messages.

Review of the Literature

In the past research examining interpersonal perception has focused on the ability to make accurate judgements about others. Along this line, increased attention has been devoted to the analysis of deceptive communication. Researchers interested in deception usually attempt to answer one of four questions: (1) can individuals distinguish between truthful and deceptive messages; (2) what instruments are most effective in the detection of deception; (3) do different channels or modalities affect the accuracy of detection; and (4) which cues distinguish between deceptive and nondeceptive messages?

The majority of the deception literature focuses on the ability of individuals to distinguish between truthful and deceptive messages (Bauchner, Kaplan, & Miller, 1980; Fay & Middleton, 1941; Harrison, Havalek, Raney, & Fritz, 1978;

Kraut, 1978; Littlepage & Pineault, 1978; Maier & Janzen, 1968; Maier & Lavrakes, 1976: Maier & Thurber, 1968; Matarazzo, Wiens, Jackson, & Janaugh, 1970.) The results suggest that people are substantially more accurate than chance at distinguishing between truthful and deceptive messages. Maier (1966), in one of the earliest studies, found that interviewers were able to distinguish between honest and dishonest interviewees better than chance. Even so Maier and Janzen (1968) found that judgements seem to be based more upon impression than upon logic. With this in mind, researchers need to be reminded that "detection of deception is a subtle phenomenon in which psychological variables play a crucial role" (Gutafson & Orne, 1965, p.417). For this reason, it is often necessary to use sophisticated instrumentation to detect deception.

Increased interest in the ability of people to detect deception has led to research examining the effectiveness of measuring instruments. Physiological, neurophysiological, and psychological variables such as heart rate, galvanic skin response, and motivation have been examined (Corcoran, Lewis, & Garver, 1977; Cutrow, Parks, Lucas, & Thomas, 1972; Davidson, 1968; Dearman & Smith, 1963; Gustafson & Orne, 1963; Horvath, 1978; Lykken, 1974; 1979; Orne, Thackray& Paskewitz, 1972; Podlesny & Raskin, 1977). Previous research suggests that perceptions of the

consequences (i.e., rewards, punishment) of being detected affect the magnitude of a physiological response. Gutafson and Orne (1963) found that subjects without increased motivation or awareness of the consequences of detection were more difficult to detect during deception. In other word, the perceived role of the participant during deception seems to alter greatly the responsiveness demand characteristics which in turn affect the rate of detection. Most recently, Podlesny and Raskin (1977), in a review of deception measurement, found that physical responsiveness (i.e., body movement, facial expressions, etc.) varies along with physiological responsiveness.

Increasing numbers of investigations are examining the effects of differing channels or modalities such as the face, voice, words, and body on accurate detection of deception (Bauchner, Kaplan, & Miller, 1980; Ekman & Friesen, 1969; 1974; Ekman, Friesen, & Scherer, 1976; Feldman, 1976; Harrison, Hwaleck, Raney, & Fritz, 1978; Hocking, Bauchner, Miller, & Kaminski, 1979; Horvath, 1973; Kraut, 1978; Littlepage & Pineault, 1978; Streeter, Krauss, Geller, Olson, & Apple, 1977; Zuckerman, DeFrank, Hall, & Lawrence, 1970). Through analysis investigators hope to isolate particular behaviors which provide the best information with which to detect deception. Maier and Thurber (1968) found that listeners (77%) and readers

(77.3%) were significantly more accurate at detecting deception than watchers (58.3%). Although listeners, readers, and watchers were all more accurate than chance, it seems that visual cues distract observers thus lowering the accuracy of observation. More recently, Bauchner, Kaplan and Miller (1980) found that the amount of verbal and nonverbal information given to observers does not predict accuracy in detecting deception. In fact, increased information availability seems to distract observers.

Finally, investigators attempt to answer questions concerned with specific cues that distinguish deceptive from nondeceptive messages (Ekman, 1976; Ekman & Friesen, 1972; Greenglass, 1972; Knapp, Hart, & Dennis, 1974; Luria 1932; Mehrabian, 1971; McClintock & Hunt, 1975; Streeter, Krauss, Geller, Olson & Apple, 1977; Todd-Mancillis & Kibler, 1979). To improve deception research, Depaulo and Rosenthal (1979) suggest that future inquiry consider relationships among (1) cues that actually distinguish between truth and deception; (2) cues that people say they use to distinguish truth and deception; and (3) cues people actually do use in their judgements between truth and deception. Relatively few researchers are pursuing this line of inquiry (Baskett & Freedle, 1974; Kraut, 1978).

Directions of Future Deception Research

The questions being asked by researchers are important, yet deception parameters need to be established if future investigations are to be most beneficial. Many deception research questions are too broad and need to be studied in smaller and more manageable forms. It is necessary to study verbal and nonverbal deception variables separately to insure greater understanding of how verbal and nonverbal variables interact. Too often research attempts to detect deception without attempting to understand it (Hample, 1980). Depaulo and Rosenthal (1979) suggest a four-dimensional approach which analyzes deception as a function of lies, liars, lie detectors, and social settings. Since all lies are not the same, they cannot fit into one nice, neat category. There are (1) ordinary white lies; (2) lies for self-aggrandizement; (3) lies which both are and are not verifiable; (4) lies that cause differing amounts of stress; (5) lies that require differing amounts of involvement; (6) lies that have unique consequences if detected; and (7) lies that are spontaneous, rehearsed, or premeditated (Depaulo & Rosenthal, 1979). Unique qualites of the deceptive process require situational analysis, yet, few studies examine the purpose and effects of deception (Elliott, 1979; Hample, 1980; Knapp & Comadena, 1979).

Since research suggests that social settings or environments influence interpersonal behavior (Mehrabian, 1976; Griffitt, 1970; Griffitt & Veitch, 1971; Carr & Dabbs, 1974; Zweigenhaft, 1976), it is assumed that social settings also effect deceptive behavior. Miller and Steinberg (1975) suggest that the accuracy of predicting behavior increases as knowledge about the the idiosyncratic behavior of others increases. Recently, Brandt, Miller, and Hocking (1980) measured the effects of self-monitoring and familiarity on deception detection. They found that familiarity and self-monitoring ability significantly affects accuracy in detecting deception. For better understanding of deception, then, it is important to investigate the influence of other people, formal and informal communication structures, and the degree of social or normative support in differing environments.

Most deception research has analyzed verbal and nonverbal behaviors in combination or by isolating nonverbal behaviors. Research indicates that nonverbal cues tend to cause distracting effects (Maier & Thurber, 1968). If nonverbal cues do serve as distractions, verbal and nonverbal cues need to be studied independently. Eventually the total process needs to be studied holistically, but individual analysis should provide better information about the similarities and differences of deceptive verbal and

nonverbal messages. Discovering whether or not nonverbal behavior truly speaks louder than words can be answered only after thorough research examines verbal and nonverbal behaviors in isolation and in combination, since previous research demonstrates a need to view nonverbal behavior in the context of communication as a process.

Linguistic Analysis of Deception

In the past, the majority of deceptive communication studies focused on the abilities of individuals to distinguish between truthful and deceptive messages. Other studies have attempted to identify measuring instruments, the importance of specific channels or modalities, and cues which distinguish truth from deception. Recently, the focus of deception research has been on nonverbal behaviors which influence deception, yet few studies have examined verbal behaviors which influence it. For increased understanding of deceptive communication, verbal behaviors need to be studied independently of deceptive nonverbal behaviors. Relatively little systematic research has examined linguistic indices of deception.

Of the research conducted, most has been based on the premise that language behavior is indicative of cognitive and motivational states. With undergraduates during fifteen minute interviews, Matarazzo, Wiens, Jackson, and Manaugh (1970 sought empirical evidence to prove that speech behavior mirrors underlying motivational states. They found no significant differences between cognitively induced and normal motivational states for speech or silence durations. Yet, following the same line of research, Mehrabian (1971) found that deceivers talk less and more slowly than nondeceivers when they are less certain of their position. More recently, Horvath (1973) found that verbal and nonverbal behaviors of truthful polygraph subjects differed significanltly from deceptive polygraph subjects.

Using a spectrograph to record one word responses to questions, Motley (1974) found that deceptive comments were significantly shorter in duration than truthful comments. At the same time, Knapp, Hart and Dennis (1974) attempted to isolate characteristics of verbal and nonverbal intentionally deceptive communication. Using male veterans as subjects, they found that deceivers used significantly fewer words, fewer different words, fewer past-tense verbs, and fewer group references than nondeceivers. They also found that deceivers use more "allness" terms, and more other references. The same study examined differences

between statement types and found that veterans use fewer factual statements, fewer statements of self-experience, fewer claims of self-interest, and more disparaging comments than nondeceivers.

In a similar study using female undergraduates, Todd (1976) also found that deceivers used more disparaging comments than nondeceivers. However, unlike the Knapp, et al.(1974) study, this study did not find any word usage or statement type similarities. About the same time, Chapman (1976) examined the structural properties in the language of Richard Nixon when lying and telling the truth. He found increased use of self-referents and sensation based language for deceptive comments. Another study conducted by Kraut (1978) suggests that deceivers give less plausible answers than nondeceivers.

More recently, Todd-Mancillas and Kibler (1979) attempted to test concurrent validity for the linguistic indices of deception found in the Knapp et al. (1974) study. They found only one index, disparaging statements, to discriminate significantly between truthful and deceptive conditions. Finally, Edelman (1981) while examining differences between psuedo and real suicide notes found increased word usage, information density, sensation density, authority perception, generalized other perception,

and audience perception in genuine suicide notes.

Thus far research examining linguistic indices of deception has found discrepancies in measures of validity. Knapp, et al. (1974) identified eleven linguistic indices of deception which were dividied into five clusters: uncertainty- relative strength with which subjects phrased their remarks; reticence-tendency to talk more or less; dependence-disassociation with remarks; vagueness-tendency to equivocate; and negative affect-unpleasantness as a result of being unconcerned about interpersonal relationships.

A few years later, Todd-Mancillas and Kibler (1979) attempted to establish concurrent validity for the indices found in the Knapp, et al.(1974) study. They found validity for the number of words, message duration, and probes under the reticence cluster, limited validity for different words and confidence ratios for the uncertainty cluster, and no support for vagueness ,dependence, and negative affect clusters. As mentioned previously, only one index, disparaging statements, discriminated between truthful and deceptive messages. Although Todd-Mancillas and Kibler (1979) offer explanations for the discrepancies (i.e., gender differences, rigorous alpha levels, etc.), further research seems necessary to find valid indices of linguistic

deception.

Syntactic Langauge Computer Analysis

Establishing a foundation for verbal analysis requires an understanding of linguistic frameworks. Morris (1938) provides a linguistic framework of syntactics, semantics, and pragmatics. Syntactics refers to structure, semantics to comprehension, and pragmatics to relationships between language use and language users. Pragmatics deals with the degree of belief or disbelief that individuals attribute to information. Pragmatics operates only after syntactics and semantics have occurred. Since pragmatics focuses on the degree of belief or disbelief attributed to information, linguistic analysis of deception would be most concerned with the pragmatic aspect of linguistics.

Locating valid indices of deception requires adequate tools capable of measuring differences in both oral and written messages. In the past the expense of training coders was prohibitive and coding messages by hand was often inaccurate. Current methodologies and procedures using computerized programs allow greater freedom and accuracy in linguistic analysis. However, the use of sophisticated instrumentation in linguistic research should "lead to an accurate, practical, and standardized system of recording

behavioral data." (Horvath, 1973, p.152).

The practical use of discourse analysis has been aided by the introduction of computerized programs to analyze language behavior. One of the programs, Syntactic Language Computer Analysis (SLCA-II), developed by Cummings and Renshaw (1975) attempts to identify similarities, differences and relationships among discriminable elements in language. SLCA charts language profiles by identifying eight qualities of language: (1) social perception- identifies manners in which individuals attribute meaning to animate and inanimate objects; (2) sensation- refers to degrees of abstract and/or concrete language usage; (3) existence- suggests what a person believes exists from what a person believes does not exist; (4) motion- refers to the activity and passivity in language usage or behavior; (5) disposition- is concerned with what is possible rather than with what is; (6) time- references in language to the past, present, and future; (7) symmetry- points to the intentions of individuals by identifying nouns in transitive and intransitive or asymmetric or symmetric relationships; and (8) conditionality- refers to the qualitative information associated with nouns and verbs.

Cummings and Renshaw (1979) identify these eight qualities by examining the relative densities of three parts-of-speech: nouns, verbs, and adjectives and adverbs. SLCA views the "verbalized message corpus as the primary unit of analysis with the word as the basic sub-unit" (Cummings & Renshaw, 1979, p.11). By examining the noun, verb, and adjective/adverb densities a "probability view of language behavior " is obtained which establishes a method of understanding cognition and behavior. Information density is defined as "the relative frequency of nouns which function as subjects and objects of verbs in a message corpus. Relational density is the relative frequency of verbs or verb phrases in a message corpus. Qualitative-Quantitative density is the relative frequency of modifiers (adjectives and adverbs) in a message corpus" (Cummings & Renshaw, 1979, p.295). Measures of density are based on the total number of nouns, verbs and adjectives and adverbs used in messages. The ratios of these densities have meaningful zero points

SLCA analysis provides profiles of individuals in differing subjective states. The theoretical framework operates on the premise that "our language behavior through the words we use is not only predictable from our cognition, but that the relations are isomorphic, our language is a "mirror" of our cognitions"(Cummings & Renshaw, 1975,p.4).

As with Morris (1938) Cummings and Renshaw (1979) suggest that a major emphasis of the theory may be said to deal with the pragmatic level of language study or concerned with"the 'effecting' behavior we manifest through our language structuring behavior and how differing properties of our language function to relate states of perception and cognition relative to other individuals in our environment"(p.12).

SLCA has been used to examine oral and written messages, yet few studies have examined deceptive communication (Chapman, 1976; Edelman, 1981). SLCA should provide researchers with useful information concerning linguistic indices of deception. Thorough analysis of linguistic deception should include an examination of differences between oral and written communication.

Previous research suggests that there are significant differences between spoken and written communication. Gibson, Gruner, Kibler, and Kelly (1966) found a spoken communicator style was more readable, interesting, and used a simpler vocabulary than a written communicator style. Devito (1967) found that written language contained significantly more nouns and adjectives and that oral language contained significantly more verbs and adverbs. He also found that the ratio of verbs to adjectives was

significantly higher for oral communication styles than for written communication styles. Since SLCA analysis has been used to quantify language behavior, it should also benefit research interested in verifying language behavior.

Intensity, Immediacy, and Lexical Diversity in Deceptive Language

With the aid of SLCA this study will attempt to investigate differences in language intensity, verbal immediacy, and lexical diversity. Previous research suggests that deception involves a stressful subjective state. Recently, Bradac, Bowers and Courtright (1979) postulated that language varies "in normal communication as a function of alterations in subjective states of communicators"(p.258). Therefore, the different subjective states present during truthful and deceptive communication should affect language variations and communication outcomes. Language intensity, verbal immediacy, and lexical diversity are three lexical variables which vary during stressful conditions (Bradac, et al., 1979). Intensity is the "quality of language which indicates the degree to which the speaker's attitude toward a concept deviates from

neutrality (Bowers, 1963, p.345). Immediacy is known as the degree to which a person associates with topics or persons (Wiener & Mehrabian, 1967). Diversity in language refers to the differences in the use of vocabulary and numbers of words used during communication.

Bradac, et al (1979) posit twenty-six generalizations about the use of intensity, immediacy, and diversity in language. Three of their generalizations apply directly to stressful conditions. Since deception is assumed to be a stressful condition, these generalizations presumably would be applicable to the study of verbal deceptive and truthful messages. Generalization 1 states that cognitive stress "is inversely related to the language intensity of sources" (p. 259). Previous research indicates that individuals preparing belief-congruent messages use more intense language than individuals preparing belief-discrepant messages (Burgoon & Miller, 1971). Presumably, preparing belief-discrepant messages would be more stressful than preparing belief-congruent messages. In another study, Daly and Miller (1975) found that on a writing assignment high writing apprehensives produced lower intensity messages than low writing apprehensives.

Generalization 15 suggests that cognitive stress "on the part of the source is inversely related to verbal immediacy" (p.262). Greenberg and Tannenbaum (1962) induced stressful situations and found that writers in stressful situations used fewer first person pronouns than writers who had no reason to feel stressful. Hart (1976) found that Nixon used lower verbal immediacy when he was communicating in relatively uncomfortable situations.

Generalization 20 states that cognitive stress "on the part of a source is inversely related to lexical diversity" (p.263). Research suggests that increased stress increases the repetition of words and lowers type token ratios (Kasl & Mahl, 1965; Mahl, 1956; Miller, 1964). Daley (1977) found that individuals high in writing apprehension produce fewer words, fewer uncommon words, and fewer different uncommon words than low writing apprehensives.

Based on the above generalizations, a stressful source would deliver messages low in intensity, immediacy, and diversity. Although the generalizations suggest linear relationships between cognitive stress, language intensity and lexical diveristy, curvilinear relationships are possible when extremely high or extremely low levels of stress exist (Bradac, et al., 1979).

Rationale and Research Hypotheses

Discourse analysis using computerized programs and procedures should provide information necessary to isolate valid indices of deception. Specifically, this study was designed to investigate sex differences between truthful and deceptive messages during verbal expression. Following DePaulo and Rosenthal's (1980) suggestion for the establishment of parameters in deception research, this study examined a particular social setting, deceit (lie), deceiver (liar), and deception (lie) detector.

The social setting selected for this study was the employment interview. The primary reason for selecting the employment interview was because research indicates that deception is commonly used during employment interviews (Stewart & Cash, 1978; Hample, 1980). Another reason the employment interview was selected was because of the negative consequences associated with deceiving during interviews. The consequences if detected while deceiving were also similar to the social settings used in the Ekman and Friesen (1974) and Hocking, Bauchner, Kaminski, and Miller (1979) studies.

The particular type of deception analyzed in this study was self-aggrandizement. Deceptive comments were intentional, premeditated, and yet unrehearsed. The purpose of this deception was to maximize the interviewee's potential of securing a job. Because of the serious consequences of being detected (i.e., losing the job), the applicant was placed in a stressful situation.

Deceivers and non-deceivers in this study were operationalized as undergraduate business students seeking employment. Interview questions were used to secure responses from each subject. Since previous research suggests that deceptive messages are characterized by significantly more past tense verbs, this study was designed to investigate changes in tense response as a function of the phrased tense of each interview question. From these assumptions, methods of linguistic analysis were used to differentiate between truth and deception during oral and written interviews. Previous research examining deception and stress suggests that deceivers use different linguistic properties than non-deceivers. It is hypothesized that:

Oral and Written

1. Oral language will be characterized by significantly fewer different words than written

language.

2. Oral messages will be characterized by significantly different perceptual cognitive activity than written messages in:
   A. Information Unit Density.
   B. Relational Unit Density.
   C. Qualitative-Quanitative Unit Density.
3. Oral language will be characterized by significantly more personal words than written language.
4. Oral messages will be significantly discriminable from written messages.

Truth and Deception

1. Truthful messages will be significantly different in social perception from deceptive messages. This will be reflected in:
   A. Postive Audience Perception.
   B. Negative Self Perception.
   C. Positive Generalized Other Perception.
   D. Negative Generalized Other Perception.
2. Truthful messages will be significantly different in sensation density from deceptive messages. This will be reflected in:

A. Sensation Information Unit Density.

B. Sensation Qualitative-Quantitative Unit Density.

3. Truthful messages will be significantly different in existential density from deceptive messages. This will be reflected in:

   A. Negative Existential Density.

   B. Negative Qualitative-Quantitative Unit Density.

   C. Negative Relational Unit Density.

4. Truthful messages will be significantly different in definitional density from deceptive messages. This will be reflected in:

   A. Undefined Relational Density.

5. Truthful messages will be significantly different in motion density from deceptive messages.

6. Truthful messages will be significantly different in time density from deceptive messages. This will be reflected in:

   A. Past Time Density.

   B. Present Time Density.

   C. Future Time Density.

7. Truthful messages will be significantly different in dispositional density from deceptive messages. This will be reflected in:

A. Assertion Density.

B. Conditional Density.

8. Truthful messages will be characterized by significantly fewer words than deceptive messages.
9. Truthful messages will be significantly discriminable from deceptive messages.

Males and Females

1. Male responses will have significantly fewer words than female responses.
2. Male responses will be significantly discriminable from female respoonses.

Questions

1. Question responses will be characterized by significantly fewer words than other question responses when phrased in the :

   A. Past Tense.

   B. Present Tense.

   C. Future Tense.

   D. Conditional Tense.
2. Question responses will be significantly discriminable from other question responses.

CHAPTER II.

METHODS AND PROCEDURES

The purpose of this study was to identify differences between oral and written intentionally deceptive and intentionally truthful messages. This chapter will discuss the experiment's selection of subjects, independent variables, dependent measures, experimental design, specific procedures, and analysis of data.

Subjects

The subjects in this study were 31 male and 42 female students in undergradute business and professional communication courses. These subjects were selected because of similar course requirements, ages, interests, and motivation to learn interviewing skills. Subjects received credit for participation in either oral or written employment interviews.

Independent Variables

Oral Interview. Subjects (Ss) were asked four interview questions by trained interviewers. Half of the Ss were instructed to give truthful responses and half were instructed to give deceptive responses to the four interview questions. After the first interview, Ss participated in a second interview in which they answered the same questions in the opposite conditons (truthful/deceptive). Ss were given as much time as they needed to answer the questions in both interviews. (See Appendix A)

Written Interview. Ss were given thirty minutes to answer four interview questions by trained interviewers. Half of the Ss were instructed to write truthful responses and half were instructed to write deceptive responses to four interview questions. After the first interview, Ss participated in a second interview in which they were instructed to answer the same questions in the opposite condition (truthful/deceptive). Ss were given twenty minutes to answer the questions in the second interview. (See Appendix B)

Questions

Four open-ended questions typically asked during employment interviews on college campuses were used in this study. The questions asked were directed to four temporal situations. One question was directed to the past; What influenced you to attend Louisiana State University?; one to the present, Are you internallly or externally motivated to do well? Explain.; one to the future, What do you see yourself doing in five years?; and one question was conditional, If you could have the perfect job, what would it be like? Ss answered each of the randomly assigned interview questions with either oral or written responses.

Instructions

Sign-up Instructions. Ss were told that they would participate in a study investigating the employment interview. Participants were given a choice of times and dates and asked to dress appropriately for a job interview. These instructions were intended to maximize Ss motivation

to participate.

Oral and Written Instructions. Procedures used in previous research set the precedent for the instructions used in this study. Instructions given before each treatment condition were intended to establish particular mental sets. (See Appendix A & B)

Interviewers

Interviewers in this study received special training prior to participation in a pilot study. Only male interviewers were used in this study in an attempt to control for interviewer sex differences. Each interviewer was instructed to wear a coat and tie or suit and to learn a short description concerning a hypothetical company called Amalgamated Industries. Interviewer instructions were similar to those used in the Todd-Mancillas and Kibler (1979) study. (See Appendix B) Each interviewer received practice in asking four randomly assigned interview questions. The interviewers were instructed to ask additional questions only if Ss ran out of things to say. If Ss did run out of things to day, the interviewers were

instructed to wait at least three seconds before asking short open-ended questions such as "Is there anything else you would like to add?" Finally, interviewers were instructed to be nonverbally encouraging for all answers (head nods, smiles when appropriate, etc.).

Predictor Variables

The SLCA program was used to measure differences between truthful and deceptive oral and written messages. Type Ratios were calculated to measure differences between truthful and deceptive oral and written messages. Measures of verbosity were calculated to measure differences between truthful and deceptive oral and written messages. These indices were also used to measure differences between males and females during oral and written interviews under truthful and deceptive conditions. Self-report rating scale scores were used to identify the degree of deception employed by each Ss.

Experimental Design

Lab Environment. The experiment was conducted in four rooms at Louisiana State Univeristy. Instructions were given in room number one. The second room was used for Ss contemplation. The first interview was conducted in number three. Finally, the second interview and Ss debriefing were conducted in room number four. (See Appendix C)

Instrumentation. Recordings of the first and second oral interviews were made with two audio cassette recorders. The first oral interview was also recorded with a video-tape camera. The first and second written interview responses were recorded on prepared answer sheets.

Specific Procedures

Equipment and Material Preparation. The experiment consisted of one session with each subject. Before the interviews began all equipment was prepared and checked. The following equipment checklist was used.

Oral Interview Condition

Room Number One

1. Desk and chairs arranged for giving instructions.
2. Ss release forms were placed on the desk.
3. Instructions for truthful and deceptive interview conditions were placed on the desk.
4. Assignment sheets were provided for the Ss.
5. List of expected Ss was placed on the desk.

Room Number Two

1. Furniture arranged for contemplation time.

Room Number Three

1. The interviewer/interviewee desk and chairs were placed properly.
2. The video-tape camera was focused, batteries checked and machine set on pause.
3. The video-tape equipment was set for recording the first interview.
4. A cassette recorder was prepared and placed on the interviewer desk.
5. Interviewer instructions were placed on the desk along with the ramdomly assigned order of

questions.

Room Number Four

1. The desk and chairs were arranged for the interview situation.
2. A cassette recorder was prepared and placed on the interviewer desk.
3. Random order question assignment was provided for the interviewer.
4. Follow-up interviewer instructions were placed on the desk.
5. Assignment of truthful and deceptive conditions was given to the interviewer.
6. Interview rating scales were placed on the desk.
7. Debriefing instructions were placed on the desk.

Written Interview Condition

Room Number One

1. Desk and chairs arranged for giving instructions.
2. Ss release forms placed on desk.
3. Instructions for truthful and deceptive interview

conditions were placed on desk.

4. Assignment sheets were provided for the Ss.
5. List of expected Ss was placed on the desk.

Room Number Two

1. Furniture arranged for comtemplation time.

Room Number Three

1. Desk and chairs were arranged for interview(interviewee is given a separate desk for writing).
2. Interviewer instructions were placed on desk.
3. Question booklets were provided for interviewers.

Room Number Four

1. Desk and chairs were arranged for the final interview.
2. Follow-up interviewer instructions were placed on desk.
3. Interview rating scales were placed on desk.
4. Order of truthful and deceptive conditions were placed on desk.
5. Debriefing instructions were placed on desk.

Subject Preparation. After the equipment, materials, and rooms were prepared, Ss entered Room Number One. The steps used for the SS preparation are described below:

1. Ss entered the first room, gave their names, and were seated directly across from the experimetner.
2. Ss were asked to read and sign release forms.
3. The experimenter explained what SS were involved in, gave instructions , and asked if there were any questions.
4. The experimenter took Ss to room number two for a ten minute contemplation period and shut the door.
5. The experimenter opened the door to the contemplation room and led Ss to the interview.
6. The experimenter gave Ss final instructions on the way to the first interview.
7. Ss were introduced to another experimenter outside room number three.
8. The second experimenter knocked on the door.

First Interview. After the rooms were prepared and Ss introduced to the second experimenter, the experiment was ready to begin. After the knock, the following events occurred:

Oral Interview

1. The interviewer turned on the video and cassette recorders.
2. The interviewer opened the door, introduced himself, shook hands with the Ss and shut the door.
3. Ss were asked to place their belongings on a chair.
4. Ss were asked to have a seat.
5. Interviewer gave introductory comments.
6. Interviewer asked four questions in ramdom order.
7. Interviewer gave closing comments.
8. Ss were thanked and taken to the door.
9. An experimenter took Ss to room number three for the second interview.
10. Interviewer shut the door and prepared the equipment for the next Ss.

Written Interview

1. Interviewer opened the door, introduced himself, shook hands with Ss, and shut the door.
2. Ss were asked to place their belongings on a chair.
3. Ss were asked to have a seat.
4. Interviewer gave introductory comments.
5. Interviewer gave Ss booklet with four questions in

random order.

6. Interviewer gave closing comments.
7. Ss were thanked and taken to the door.
8. An experimenter took Ss to room number three for the second interview.
9. Interviewer shut the door.

Second Interview. After the first interview, the Ss were introduced to the second interviewer. After the introduction, the following occurred.

Oral Interview

1. The interviewer shut the door and asked Ss to have a seat.
2. Ss were asked to complete rating scales for each question asked during the first interview.
3. The interviewer gave instructions for the second interview.
4. The interviewer released the pause button on the cassette recorder.
5. Ss were asked the same questions in the same order as in the first interview.
6. Ss were debriefed (see Appendix A & B).
7. Ss were thanked for their participation and dismissed.

Written Interview

1. The interviewer shut the door and asked Ss to have a seat.
2. Ss were asked to complete rating scales for each question asked during the first interview.
3. The interviewer gave instructions for the second interview.
4. The interviewer gave Ss a booklet with four questions in the same order as in the first interview.
5. Ss were debriefed (see Appendix A & B).
6. Ss were thanked for their participation and dismissed.

Data Analysis

Oral Analysis. The answers to questions during truthful and deceptive conditions were transcribed for each subject. With the use of a TSO terminal, the transcriptions were placed into data sets without interviewer probes or comments.

Written Analysis. The answers to questions during truthful and deceptive conditions were analyzed for each subject. With the use of a TSO terminal the answers were placed into data sets.

A four-way analysis of variance (2x2x2x4), and stepwise multiple discriminant analyses were calculated to identify language behaviors and relationships which identify and distinguish between oral and written messages, truthful and deceptive mesages, and males and females. The data were analyzed at a .05 percent level of confidence.

Null Hypotheses

The null hypotheses for this study were retained or rejected on the basis of the results from the statistical analysis. The null hypotheses were:

1. oral messages will not be characterized by significantly different linguistic indices than written messages.
2. truthful messages will not be characterized by

significantly different linguistic indices that deceptive messages.

3. male responses will not be characterized by significantly different linguistic indices than female responses.
4. individual question responses will not be characterized by significantly different linguistic indices than other individual question responses.

Chapter III.

RESULTS

Employment interview question responses were analyzed with a four-way analysis of variance (2x2x2x4) with repeated measures on the fourth factor. The first factor was the mode (oral or written). The second factor was the condition(truth or deception). The third factor was the sex of the subject (male or female). The fourth factor was one of four interview questions. After question responses were analyzed with SLCA III, a general linear model (GLM) was used to run a multivariate analysis of variance with a program from the SAS User's Guide. Next, using the Statistical Package for the Social Sciences (SPSS), a stepwise multiple discriminant analysis (MDA) was calculated to identify linguistic indices differentiating between factors. The discriminant analysis chose the best predictors for each factor; however this does not suggest that other variables would also not be significant predictors for other selection procedures. The results of these statisical tests were used to retain or reject the null hypotheses.

Oral and Written

Null hypothesis 1 was rejected. Oral messages were characterized by significantly different linguistic indices than written messages. The following research hypotheses and statistical result comparisons identify differences between oral and written language use. Research hypothesis 1 that oral messages would have significantly fewer words than written messages was not supported. Research hypothesis 2 that oral messages would be characterized by significantly different perceptual cognitive activity than written messages was supported. The results indicated significant differences for information unit (IU) density (mode x ques, $F=2.61, df3/185, p<.05$), but not for relational (RL) or qualitative-quantitative (QQ) unit densities. The results are reported in Table 1.

The results suggested support for research hypothesis 3 that stated that that oral messages were characterized by significantly more positive self-perception words than written messages. The results as reported in Table 2 indicated significant differences between modes ($F=7.98, df1/69, p<.006$).

TABLE 1

SUMMARY OF ANALYSIS OF VARIANCE FOR INFORMATION UNIT DENSITY

DEPENDENT VARIABLE: INFORMATION UNIT DENSITY

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	100	0.53344929	0.00533449	1.06	0.3657	0.363998	19.9805
ERROR	185	0.93207703	0.00503825		STD DEV		YI MEAN
CORRECTED TOTAL	285	1.46552632			0.07098066		0.35525000

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00103934	0.20	0.6550	1	0.00007997	0.02	0.8999
MODE	1	0.00521804	1.03	0.3103	1	0.00240364	0.49	0.4835
SEX*MODE	1	0.00668160	1.33	0.2510	1	0.00349716	0.69	0.4058
COND	1	0.00233536	0.46	0.4968	1	0.00620921	1.25	0.2651
SEX*COND	1	0.00075706	0.15	0.6987	1	0.00088016	0.17	0.6765
MODE*COND	1	0.00000031	0.00	0.9938	1	0.00198471	0.39	0.5310
SEX*MODE*COND	1	0.00270287	0.54	0.4615	1	0.00337760	0.67	0.4140
ID(SEX*MODE*COND)	69	0.32418603	0.93	0.6245	69	0.31565391	0.91	0.6733
QUES	3	0.08414155	5.57	0.0012	3	0.05688862	3.76	0.0118
MODE*QUES	3	0.04075337	2.70	0.0465	3	0.03940128	2.61	0.0522
SEX*QUES	3	0.00944604	0.63	0.6020	3	0.00725866	0.48	0.7034
SEX*MODE*QUES	3	0.01925352	1.27	0.2841	3	0.01885109	1.25	0.2935
COND*QUES	3	0.00932039	0.62	0.6091	3	0.00882721	0.58	0.6301
SEX*COND*QUES	3	0.00229607	0.15	0.9252	3	0.00120022	0.08	0.9658
MODE*COND*QUES	3	0.02477444	1.64	0.1802	3	0.02343011	1.55	0.2015
SEX*MODE*COND*QUES	3	0.00049731	0.03	0.9869	3	0.00049731	0.03	0.9869

TESTS OF HYPOTHESES USING THE TYPE IV MS FOR ID(SEX*MODE*COND) AS AN ERROR TERM

SOURCE	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00007997	0.02	0.8952
MODE	1	0.00240364	0.54	0.4637
SEX*MODE	1	0.00349716	0.76	0.3850
COND	1	0.00620921	1.37	0.2450
SEX*COND	1	0.00088016	0.19	0.6623
MODE*COND	1	0.00198471	0.43	0.5123
SEX*MODE*COND	1	0.00337760	0.74	0.3932

TABLE 2

SUMMARY OF ANALYSIS OF VARIANCE FOR POSITIVE SELF-PERCEPTION

DEPENDENT VARIABLE: POSITIVE SELF-PERCEPTION

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	100	0.06622835	0.00066228	1.11	0.2648	0.375596	123.9974
ERROR	185	0.11010016	0.00059514		STD DEV		ZIP MEAN
CORRECTED TOTAL	285	0.17632851			0.02439541		0.01967411

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00136704	2.30	0.1313	1	0.00034316	0.58	0.4496
MODE	1	0.00460696	7.74	0.0060	1	0.00445978	7.49	0.0068
SEX*MODE	1	0.00025293	0.42	0.5160	1	0.00005557	0.09	0.7633
COND	1	0.00031336	0.53	0.4690	1	0.00019657	0.33	0.5662
SEX*COND	1	0.00070704	1.19	0.2771	1	0.00183828	3.09	0.0805
MODE*COND	1	0.00000081	0.00	0.9706	1	0.00000002	0.00	0.9958
SEX*MODE*COND	1	0.00006972	0.12	0.7325	1	0.00009026	0.13	0.7139
ID(SEX*MODE*COND)	69	0.04017886	0.98	0.5214	69	0.03857965	0.94	0.6104
OBES	3	0.00515024	2.88	0.0365	3	0.00536342	3.00	0.0313
MODE*OBES	3	0.00316543	1.77	0.1521	3	0.00255008	1.43	0.2347
SEX*OBES	3	0.00242476	1.58	0.1936	3	0.00183305	1.03	0.3330
SEX*MODE*OBES	3	0.00260125	1.46	0.2265	3	0.00196861	1.10	0.3491
COND*OBES	3	0.00047837	0.27	0.8491	3	0.00047074	0.26	0.8521
SEX*COND*OBES	3	0.00075044	0.42	0.7422	3	0.00090546	0.51	0.6667
MODE*COND*OBES	3	0.00167945	0.94	0.4230	3	0.00120756	0.68	0.5713
SEX*MODE*COND*OBES	3	0.00188259	1.05	0.3705	3	0.00188259	1.05	0.3705

TESTS OF HYPOTHESES USING THE TYPE IV MS FOR ID(SEX*MODE*COND) AS AN ERROR TERM

SOURCE	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00034316	0.61	0.4361
MODE	1	0.00445978	7.98	0.0062
SEX*MODE	1	0.00005557	0.10	0.7535
COND	1	0.00019657	0.35	0.5552
SEX*COND	1	0.00183828	3.29	0.0741
MODE*COND	1	0.00000002	0.00	0.9957
SEX*MODE*COND	1	0.00009026	0.16	0.7059

Research hypothesis 4 that truthful messages would significantly discriminable from written messages was supported. The selection procedure isolated 12 variables that discriminated between oral and written responses. They were negative audience perception, non-sensation (QQ) density, inaminate perception, negative existential density, motion density, positive self-perception, past time density, negative authority perception, total word usage, positive audience perception, defined relational density, and dispositional density. The MDA classified 83% of the responses correctly. The results are presented in Table 3. Given a 50-50 chance probability between the oral and written modes, a Z test was computed and the 83% classification level was found to be significant at less than the .0001 level of confidence. The results are presented in Table 3.

Truth and Deception

Null hypothesis 2 was rejected. Truthful messages were characterized by significantly different linguistic indices than deceptive messages. A comparison of the results with the research hypotheses identified characteristic

TABLE 3

Discriminating Variables and Predicted Group Membership for Mode

SLCA Variable	F to Remove	Wilks' Lambda
Negative Audience Perception	39.721	.8772980
Non-sensation (QQ) Density	35.516	.7794762
Inanimate Perception	20.348	.7270166
Negative Existential Density	16.736	.6861507
Motion Density	19.921	.6405767
Positive Self Perception	6.0938	.6268845
Past Time Density	5.9798	.6136842
Negative Authority Perception	9.2075	.5939415
Total Word Usage	5.4966	.5823439
Positive Audience Perception	5.2669	.5714003
Defined Relational Density	4.1100	.5629559
Dispositional Density	1.6756	.5596217

Group	N of Cases	Predicted * Group Membership	
		Oral	Written
Oral	169	137 (81%)	32 (19%)
Written	117	17 (15%)	100 (85%)

83% Classified Correctly

differences between truthful and deceptive messages. Research hypothesis 1 that truthful messages will be significantly different in social perception than deceptive messages was supported. The results found significant differences for positive audience perception ($F=4.73, df1/69, p<.03$), negative self-perception ($F=5.58$, $DF1/69, p<.o2$), negative generalized other (GO) perception (sex x mode x condition, $F=4.78, df1/69, p<.03$), but not for positive generalized other perception. Tables 4, 5, and 6 present the results from the statistical analysis.

Research hypothesis 2 that truthful messages would be significantly different in sensation density than deceptive messages was not supported. No significant differences were found for sensation information unit density or sensation qualification- quantification unit densities. Research hypothesis 3 that truthful messages would be significantly different in existential density than deceptive messages was supported. The results found significant differences for negative existential density ($F=6.94, df1/69, p<.01$), but not for negative qualification-quantification or negative relational unit densities. The results are presented in Table 7.

TABLE 4

SUMMARY OF ANALYSIS OF VARIANCE FOR POSITIVE AUDIENCE PERCEPTION

DEPENDENT VARIABLE: POSITIVE AUDIENCE PERCEPTION

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	100	0.01096656	0.00010867	1.66	0.0015	0.472938	275.1944
ERROR	185	0.01656790	0.00008956		STD DEV		Y20 MEAN
CORRECTED TOTAL	285	0.0310 1446			0.00946341		0.0034 3881

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00114515	12.79	0.0004	1	0.00040109	4.48	0.0357
MODE	1	0.00154226	17.22	0.0001	1	0.00118987	13.29	0.0003
SEX*MODE	1	0.00069005	7.71	0.0061	1	0.00045811	5.12	0.0249
COND	1	0.00070642	7.89	0.0055	1	0.00055787	6.23	0.0134
SEX*COND	1	0.00037180	4.15	0.0430	1	0.00038601	4.31	0.0393
MODE*COND	1	0.00010068	1.36	0.0685	1	0.00027189	3.04	0.0831
SEX*MODE*COND	1	0.00035669	3.98	0.0474	1	0.00043106	4.81	0.0295
ID(SEX*MODE*COND)	69	0.00800866	1.30	0.0982	69	0.00814060	1.32	0.0758
QUES	1	0.00048809	1.82	0.1819	3	0.00033317	1.24	0.2961
MODE*QUES	3	0.00016640	0.62	0.6073	3	0.00017144	0.64	0.5953
SEX*QUES	3	0.00027186	1.01	0.3898	3	0.00016927	0.63	0.6005
SEX*MODE*QUES	3	0.00027537	1.02	0.3838	3	0.00026926	1.00	0.3943
COND*QUES	3	0.00005943	0.22	0.8808	3	0.00004301	0.16	0.9201
SEX*COND*QUES	3	0.00034149	1.27	0.2851	3	0.00025291	0.94	0.4215
MODE*COND*QUES	3	0.00000500	0.02	0.9924	3	0.00001338	0.05	0.9798
SEX*MODE*COND*QUES	3	0.00013702	0.51	0.6800	3	0.00013702	0.51	0.6800

TESTS OF HYPOTHESES USING THE TYPE IV MS FOR ID(SEX*MODE*COND) AS AN ERROR TERM

SOURCE	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00040109	3.40	0.0695
MODE	1	0.00118987	10.09	0.0022
SEX*MODE	1	0.00045811	3.88	0.0528
COND	1	0.00055787	4.73	0.0331
SEX*COND	1	0.00038601	3.27	0.0748
MODE*COND	1	0.00027189	2.30	0.1336
SEX*MODE*COND	1	0.00043106	3.65	0.0601

TABLE 5

SUMMARY OF ANALYSIS OF VARIANCE FOR NEGATIVE SELF-PERCEPTION

DEPENDENT VARIABLE: NEGATIVE SELF-PERCEPTION

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	100	0.54822690	0.00548227	1.72	0.0008	0.481165	45.7291
ERROR	185	0.59114698	0.00319539		STD DEV		Y19 MEAN
CORRECTED TOTAL	285	1.13937387			0.05652777		0.12361434

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.01958100	6.13	0.0142	1	0.00531350	1.66	0.1948
MODE	1	0.00092723	0.29	0.5908	1	0.00106721	0.33	0.5640
SEX*MODE	1	0.00019632	0.06	0.8045	1	0.00006143	0.02	0.8899
COND	1	0.02144858	6.71	0.0103	1	0.02071625	6.49	0.0117
SEX*COND	1	0.00044130	0.14	0.7106	1	0.00014335	0.04	0.8335
MODE*COND	1	0.00000100	0.00	0.9756	1	0.00247010	0.77	0.3804
SEX*MODE*COND	1	0.00037842	0.12	0.7311	1	0.00033837	0.11	0.7452
ID(SEX*MODE*COND)	69	0.27115365	1.23	0.1398	69	0.25620202	1.16	0.2143
QUES	3	0.19018323	19.86	0.0001	3	0.17530629	18.29	0.0001
MODE*QUES	3	0.00583954	0.61	0.6139	3	0.00511652	0.53	0.6638
SEX*QUES	3	0.01501685	1.57	0.1974	3	0.01302709	1.36	0.2558
SEX*MODE*QUES	3	0.01097531	1.14	0.3324	3	0.01027239	1.07	0.1610
COND*QUES	3	0.00130619	0.14	0.9345	3	0.00134451	0.14	0.9322
SEX*COND*QUES	3	0.00465959	0.49	0.6964	3	0.00347449	0.36	0.7830
MODE*COND*QUES	3	0.00282231	0.29	0.8308	3	0.00265959	0.28	0.8426
SEX*MODE*COND*QUES	3	0.00309438	0.32	0.8109	3	0.00309438	0.32	0.8109

TESTS OF HYPOTHESES USING THE TYPE IV MS FOR ID(SEX*MODE*COND) AS AN ERROR TERM

SOURCE	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00531350	1.43	0.2358
MODE	1	0.00106721	0.29	0.5937
SEX*MODE	1	0.00006143	0.02	0.9000
COND	1	0.02071625	5.58	0.0210
SEX*COND	1	0.00014335	0.04	0.9448
MODE*COND	1	0.00247010	0.67	0.4176
SEX*MODE*COND	1	0.00033837	0.09	0.7637

TABLE 6

SUMMARY OF ANALYSIS OF VARIANCE FOR NEGATIVE GENERALIZED OTHER PERCEPTION

DEPENDENT VARIABLE: NEGATIVE GENERALIZED OTHER PERCEPTION

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	100	0.18954958	0.00189550	1.68	0.0012	0.476369	103.1126
ERROR	185	0.20835509	0.00112624		STD DEV		Y17 MEAN
CORRECTED TOTAL	285	0.39790463			0.03355955		0.03254650

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00106172	0.94	0.3329	1	0.00002695	0.02	0.8772
MODE	1	0.01598020	14.19	0.0002	1	0.01908499	16.95	0.0001
SEX*MODE	1	0.00005273	0.05	0.8209	1	0.00140906	1.25	0.2648
COND	1	0.00197734	1.76	0.1860	1	0.00190404	1.69	0.1951
SEX*COND	1	0.00074985	0.67	0.4156	1	0.00342813	3.04	0.0827
MODE*COND	1	0.00013289	0.12	0.7316	1	0.00002047	0.02	0.8929
SEX*MODE*COND	1	0.00541376	4.81	0.0296	1	0.00626770	5.57	0.0194
ID(SEX*MODE*COND)	69	0.09406499	1.21	0.1588	69	0.09039932	1.16	0.2131
OBS	3	0.03839483	11.36	0.0001	3	0.03304334	9.78	0.0001
MODE*OBS	3	0.00618121	1.83	0.1416	3	0.00633878	1.88	0.1334
SEX*OBS	3	0.00468316	1.39	0.2474	3	0.00297906	0.88	0.4538
SEX*MODE*OBS	3	0.00313513	0.93	0.4301	3	0.00284444	0.84	0.4750
COND*OBS	3	0.00595268	1.77	0.1602	3	0.00405779	1.20	0.3136
SEX*COND*OBS	3	0.00181598	0.54	0.6613	3	0.00060491	0.18	0.9083
MODE*COND*OBS	3	0.00223634	0.66	0.5803	3	0.00229151	0.68	0.5701
SEX*MODE*COND*OBS	3	0.00781678	2.31	0.0762	3	0.00781678	2.31	0.0762

TESTS OF HYPOTHESES USING THE TYPE IV MS FOR ID(SEX*MODE*COND) AS AN ERROR TERM

SOURCE	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00002695	0.02	0.8864
MODE	1	0.01908499	14.57	0.0003
SEX*MODE	1	0.00140906	1.09	0.3033
COND	1	0.00190404	1.45	0.2321
SEX*COND	1	0.00342813	2.62	0.1103
MODE*COND	1	0.00002047	0.02	0.9009
SEX*MODE*COND	1	0.00626770	4.78	0.0321

TABLE 7

SUMMARY OF ANALYSIS OF VARIANCE FOR NEGATIVE EXISTENTIAL DENSITY

DEPENDENT VARIABLE: NEGATIVE EXISTENTIAL DENSITY

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	100	0.99436260	0.00994363	1.62	0.0025	0.466616	32.0440
ERROR	185	1.13664548	0.00614403		STD DEV		MEAN
CORRECTED TOTAL	285	2.13100808			0.07838386		0.24461294

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.02493306	4.06	0.0454	1	0.01065222	1.73	0.1896
MODE	1	0.00415593	0.71	0.4009	1	0.01107753	1.80	0.1810
SEX*MODE	1	0.00754224	1.23	0.2693	1	0.00564970	0.92	0.3388
COND	1	0.03828748	6.23	0.0134	1	0.05358605	8.72	0.0036
SEX*COND	1	0.00068533	0.11	0.7388	1	0.00252316	0.41	0.5229
MODE*COND	1	0.00305649	0.63	0.4292	1	0.00085668	0.14	0.7073
SEX*MODE*COND	1	0.01221831	1.99	0.1602	1	0.01046775	1.70	0.1934
ID(SEX*MODE*COND)	69	0.55429092	1.31	0.0811	69	0.51280639	1.26	0.1164
QUES	3	0.18992571	10.30	0.0001	3	0.15377408	8.34	0.0001
MODE*QUES	3	0.04437803	2.41	0.0675	3	0.03856259	2.09	0.1012
SEX*QUES	3	0.03919132	2.13	0.0969	3	0.03718180	2.02	0.1114
SEX*MODE*QUES	3	0.02702557	1.47	0.2239	3	0.02491738	1.35	0.2591
COND*QUES	3	0.00734983	0.39	0.7612	3	0.01059154	0.57	0.6365
SEX*COND*QUES	3	0.00557139	0.30	0.8253	3	0.00632880	0.34	0.7965
MODE*COND*QUES	3	0.02491496	1.35	0.2599	3	0.02241725	1.22	0.3049
SEX*MODE*COND*QUES	3	0.01004615	0.55	0.6562	3	0.01004615	0.55	0.6562

TESTS OF HYPOTHESES USING THE TYPE IV SS FOR ID(SEX*MODE*COND) AS AN ERROR TERM

SOURCE	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.01065222	1.33	0.2442
MODE	1	0.01107753	1.43	0.2351
SEX*MODE	1	0.00564970	0.71	0.3953
COND	1	0.05358605	6.94	0.0104
SEX*COND	1	0.00252316	0.33	0.5694
MODE*COND	1	0.00085669	0.11	0.7401
SEX*MODE*COND	1	0.01046775	1.36	0.2483

Research hypothesis 4 that truthful messages would be significantly different in definitional density than deceptive messages was not supported. No significant differences were found for undefined relational density. Research hypothesis 5 that truthful messages would be significantly different in motion density was also not supported. Research hypothesis 6 was supported. The results as reported in Table 8, indicated significant differences for past time density (sex x mode x condition, $F=4.16, df1/69, p<.04$), but not for present or future time densities.

Research hypothesis 7 that truthful messages would be significantly different in dispositional language from deceptive messages was not supported. The results indicated no significant differences for conditional or assertion densities. Research hypothesis 8 that truthful messages contain significantly more words than deceptive messages was also not supported.

Research hypothesis 9 was supported. The MDA identified 9 SLCA variables which significantly differentiated between truthful and deceptive conditions ($F=4.85, df6/279, p<.0001$). The variables were: total word usage, positive existential density, negative authority perception, positive audience perception, defined relational

TABLE 8

SUMMARY OF ANALYSIS OF VARIANCE FOR PAST TIME DENSITY

DEPENDENT VARIABLE: PAST TIME DENSITY

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	100	0.93756101	0.00937562	2.57	0.0001	0.581221	30.0817
ERROR	185	0.63950280	0.00345677		STD DEV		Y32 MEAN
CORRECTED TOTAL	285	1.52706381			0.05879428		0.19544860

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00000003	0.00	0.9876	1	0.00000036	0.00	0.9911
MODE	1	0.01827550	5.29	0.0226	1	0.01720959	4.98	0.0269
SEX*MODE	1	0.0159764	4.63	0.0328	1	0.01778417	5.14	0.0245
COND	1	0.00119904	0.92	0.3381	1	0.00130895	0.40	0.5269
SEX*COND	1	0.00285876	0.83	0.3643	1	0.00560913	1.65	0.2011
MODE*COND	1	0.00031688	0.09	0.7624	1	0.00029650	0.09	0.7699
SEX*MODE*COND	1	0.00217197	0.63	0.4290	1	0.00466609	1.35	0.2468
ID(SEX*MODE*COND)	69	0.33220358	1.39	0.0421	69	0.30164040	1.26	0.1132
OUPS	3	0.45648980	44.02	0.0001	3	0.44376021	42.79	0.0001
MODE*OUPS	3	0.01591687	1.53	0.2055	3	0.01289680	1.24	0.2948
SEX*OUPS	3	0.00401831	0.46	0.7112	3	0.00328543	0.32	0.8151
SEX*MODE*OUPS	3	0.01400950	1.35	0.2584	3	0.01469560	1.42	0.2380
COND*OUPS	3	0.00568829	0.55	0.6539	3	0.00455370	0.44	0.7290
SEX*COND*OUPS	3	0.00944050	0.91	0.4390	3	0.00896832	0.86	0.4627
MODE*COND*OUPS	3	0.00439042	0.42	0.7401	3	0.00413128	0.40	0.7576
SEX*MODE*COND*OUPS	3	0.00179386	0.17	0.9121	3	0.00179386	0.17	0.9121

TESTS OF HYPOTHESES USING THE TYPE IV MS FOR ID(SEX*MODE*COND) AS AN ERROR TERM

SOURCE	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	0.00000036	0.00	0.9927
MODE	1	0.01720959	3.94	0.0512
SEX*MODE	1	0.01778417	4.07	0.0476
COND	1	0.00130895	0.32	0.5748
SEX*COND	1	0.00560913	1.30	0.2579
MODE*COND	1	0.00029650	0.07	0.7953
SEX*MODE*COND	1	0.00466609	1.07	0.3051

TABLE 9

Discriminating Variables and Predicted Group Membership for Condition

SLCA Variable	F to Remove	Wilks' Lambda
Positive Existential Density	7.1119	.975570
Total Word Usage	5.7490	.956146
Positive Audience Perception	4.2116	.942076
Defined Relational Density	4.6909	.9266078
Negative Authority Perception	2.6988	.9177618
Past Time Density	3.7790	.9054970

Group	No.of Cases	* Predicted Group Membership	
		Truth	Deception
Truth		91 (65%)	50 (35%)
Deception		51 (35%)	94 (65%)

* 65% Classified Correctly

and past time. identified 65% of the truthful and deceptive responses. Table 9 provides results from the discriminant analysis. The results of the Z test, given a 50-50 chance probability, were found to be significant at less than the .001 level of confidence.

Male and Female

Null hypothesis 3 was rejected. Males were found to have significantly different linguistic indices of deception than females. Differences in the language behavior between males and females were identifed by comparing the statistical analyses with the research hypotheses. Research hypothesis 1 that male responses would have significantly fewer words than female responses was not supported. Research hypothesis 2 that male responses would be significantly discriminable from female responses was supported ($F=4.17, df10/275, p<.0000$). The results indicated 10 SLCA variables that significantly discriminated between males and females. The variables were: positive audience perception, total word usage, positive existential density, negative audience perception, undefined information density, asymmetric relation density, negative (RL) density,

TABLE 10

Discriminating Variables and Predicted Group Membership for Sex

Variable	F to Remove	Wilks' Lambda
Positive Audience Perception	10.739	.9635640
Total Word Usage	9.4122	.9325488
Positive Existential Density	5.1719	.9157539
Negative Audience Perception	5.4723	.8982609
Undefined Information Density	2.0074	.8918668
Asymmetric Relation Density	1.5807	.8868422
Negative (RL) Density	1.4276	.8823112
Sensation (QQ) Density	1.4506	.8777150
Sensation (IU) Density	1.7797	.8720914
Positive (GO) Perception	1.2047	.8682878

Group	N of Cases	* Predicted Group Membership	
		Male	Female
Male	129	76 (59%)	53 (41%)
Female	157	43 (25%)	114 (75%)

* 66% Classified Correctly

sensation (QQ) density, sensation (IU) density, and positive (GO) perception. The MDA program correctly identified 66% of the male and female responses. The results are presented in Table 10. The results of the Z test, given a 50-50 chance probability, were found to be significant at less than the .001 level of confidence.

Questions

Null hypothesis 4 was rejected. The four interview question responses were found to have significantly different linguistic indices. Research hypothesis 1 that individual question responses would be characterized by significantly fewer words than other individual question responses was supported ($f=9.02, df\ 3/185, p<.0001$). The results are reported in Table 11. Post hoc analysis, as reported in Table 12 revealed statistical significance between the means.

Research hypothesis 2 was also supported. The MDA identified 19 SLCA variables that significantly differentiated between the four interview questions. The variables were: total word usage, relational density,

TABLE 11

SUMMARY OF ANALYSIS OF VARIANCE FOR TOTAL WORD USAGE

DEPENDENT VARIABLE: TOTAL WORD USAGE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	100	124808.93876956	1248.08938770	3.41	0.0001	0.648020	40.8041
ERROR	185	67788.77591576	366.42581576		STD DEV		TOT MEAN
CORRECTED TOTAL	285	192596.81468531			19.14225211		46.91259741

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	3304.23965939	9.02	0.0030	1	258.12772922	0.70	0.4024
MODE	1	4400.16634955	12.01	0.0007	1	1924.91599554	5.25	0.0233
SEX*MODE	1	191.41627421	0.52	0.4707	1	44.47511292	0.12	0.7279
COND	1	4941.62767645	13.49	0.0003	1	2461.44991032	6.72	0.0103
SEX*COND	1	88.56654715	0.24	0.6236	1	3.75966937	0.01	0.9194
MODE*COND	1	425.13107931	1.16	0.2820	1	1.50079489	0.00	0.9490
SEX*MODE*COND	1	3576.80845940	9.76	0.0021	1	3921.71719699	10.70	0.0013
ID(SEX*MODE*COND)	69	88669.86268982	3.51	0.0001	69	87955.21492118	3.48	0.0001
QUES	3	12265.27140315	11.16	0.0001	3	9913.29431071	9.02	0.3031
MODE*QUES	3	567.76720903	0.52	0.6755	3	557.78234352	0.51	0.6817
SEX*QUES	3	2393.86292126	2.18	0.0907	3	2222.01051380	2.02	0.1108
SEX*MODE*QUES	3	859.37989131	0.78	0.5085	3	1007.31644450	0.92	0.4360
COND*QUES	3	1529.17074965	1.39	0.2458	3	1506.48083032	1.37	0.2522
SEX*COND*QUES	3	391.30025803	0.36	0.7863	3	315.50433097	0.29	0.8359
MODE*COND*QUES	3	427.92349551	0.39	0.7641	3	316.14163964	0.29	0.8355
SEX*MODE*COND*QUES	3	771.64807621	0.70	0.5555	3	771.64807621	0.70	0.5555

TESTS OF HYPOTHESES USING THE TYPE IV MS FOR ID(SEX*MODE*COND) AS AN ERROR TERM

SOURCE	DF	TYPE IV SS	F VALUE	PR > F
SEX	1	258.12772922	0.20	0.6541
MODE	1	1924.91599554	1.51	0.2231
SEX*MODE	1	44.47511292	0.03	0.8524
COND	1	2461.44991032	1.93	0.1691
SEX*COND	1	3.75966937	0.00	0.9568
MODE*COND	1	1.50079489	0.00	0.9727
SEX*MODE*COND	1	3921.71719699	3.08	0.0819

TABLE 12

F STATISTIC BETWEEN QUESTIONS

Questions	Question 2	Question 3	Question 4
Question 1	20.215*		
Question 2	13.203*	11.258*	
Question 3	19.428*	17.386*	9.7724*

*p > .0001

non-sensation information unit density, sensation qualitative-quantitative unit density, non-sensation qualitative-quantitative unit density, positive (QQ) density, negative (RL) unit density, positive authority perception, negative authority perception, positive generalized other perception, negative (GO) perception, inanimate perception, symmetric relational density, motion density, present time density, future time density, and assertion density. The MDA classified 81% of the question responses correctly. The results are presented in Table 13. Given a 1 in 4 chance probability, the Z test results indicated that 81% of the classification was significant at the .0001 level of confidence.

TABLE 13

Discriminating Variables and Predicted Group Membership for Questions

SLCA Variable	F to Remove	Wilks' Lambda	Between Questions
Assertion Density	56.002	.6266585	3 and 4
Total Word Usage	55.710	.5807796	1 and 3
Future Time Density	18.860	.4831498	3 and 4
Symmetric Relation Density	5.6338	.4555533	1 and 2
Negative Authority Perception	36.961	.3256616	3 and 4
Relational Density	18.249	.2719182	3 and 4
Negative (GO) Density	3.9928	.2606077	3 and 4
Sensation (IU) Density	9.9938	.2258001	3 and 4
Inanimate Perception	12.107	.1992860	1 and 3
Present Time Density	27.413	.1530201	3 and 4
Positive (GO) Perception	2.2991	.1492222	3 and 4
Non-sensation (QQ) Density	7.6035	.1417292	3 and 4
Negative (RL) Density)	7.4958	.1355197	3 and 4
Positive Audience Perception	2.0781	.1324501	2 and 3
Non-sensation (IU) Density	2.2357	.1292163	3 and 4
Positive (QQ) Density	4.0058	.1236509	3 and 4
Negative Audience Perception	2.1536	.1207189	3 and 4
Positive Authority Perception	2.9417	.1168283	3 and 4
Motion Density	1.0426	.1154603	3 and 4

Questions	No.of Cases	No. 1	No.2	No.3	No. 4
		* Predicted Group Membership			
No.1	72	58(81%)	3 (4%)	7 (10%)	4 (6%)
No.2	72	1(1%)	65 (90%)	5 (7%)	1 (1%)
No.3	70	2(3%)	5 (7%)	52 (74%)	11 (16%)
No.4	72	3 (4%)	3 (4%)	9 (13%)	57 (79%)

* 81% Classified Correctly

CHAPTER IV.

Discussion and Implications

This study was designed to isolate differences between intentionally deceptive and intentionally truthful responses during oral and written employment interviews. The results from the statistical analyses indicated the need to reject Null Hypotheses 1, 2, 3, and 4. The following discussion is based on the results from the statistical analyses.

Discussion

Oral and Written

Research hypothesis 1 was not supported. The analysis of variance indicated that oral messages were not characterized by significantly fewer words than written messages. However, Duncan's multiple range test did indicate significant differences between the modes. The conflicting results may be due in part to the fact that interviewees are trying to make a favorable first impression. During first encounters individuals may attempt

to avoid periods of silence, thus increasing total word usage during interviews.

Research hypothesis 2 was supported. The results indicated an interaction effect between modes and questions for information unit density, but not for relational or qualitative-quantitative unit densities. This study supports the findings of Devito (1967) which found written language contained more nouns and adjectives than oral language. However, the results suggest that noun usage is influenced by the question asked rather than by the mode used. Again the contradictory results may have been influenced by the Ss' attempt to word responses carefully in an effort to make favorable impressions.

Research hypothesis 3 was supported. The results isolated 12 discriminating variables. Eight variables were found as the best discriminators of oral responses. The results suggest that oral responses have a higher frequency of negation associated with second person pronouns, modifiers referring to qualities or quantities that can not be sensed, negation of subjects and objects of verbs, positive first person pronouns, past tense verbs and verb phrases, positive second person pronoun perception, information units with one or more qualifiers (execitive. highpaying position), and subjective mood and/or sentences

in the form of a question. Inversely, written responses were characterized as having a higher frequency of references to inanimate objects rather than people, active verbs, negation of specific persons or groups of persons, and total word usage.

The MDA results seem to support Gibson, et al. (1966) who suggest oral messages are easier to understand. Oral responses were found to have a higher frequency of qualifiers. However, oral responses were also found to use modifiers referring to that which can not be sensed or abstractions. These modifiers would tend to reduce the comprehension of messages.

Written language was characterized by using significantly greater total words. One explanation may be that interviewees that responded in writing felt the need to clarify information. During written interviews applicants did not receive immediate feedback for their responses, therefore the lack of feedback may have increased the individuals' need to give more complete (longer) responses.

The statistical analysis allowed for rejection of Null Hypothesis 1. It was found that oral messages are characterized by significantly different linguistic indices than written messages.

Truth and Deception

Research hypothesis 1 that truthful messages would be significantly different in social perception was supported. Deceptive messages were characterized as having significantly more negation in association with second person pronouns than truthful messages. The results indicated an interaction effect between the sex, mode and condition. Females used greater negative second person pronouns in oral messages and males used more negative second person pronouns in written messages. The results also suggest that deceptive responses had more positive use of first person pronouns and nouns and pronouns which refer to unspecific persons or persons in groups (i.e., someone, they). These findings support the research of Knapp, et al. (1974) which found that deceptive messages used fewer group references and more allness terms and other references. However, the results do not support the Knapp, et al. (1974) research that suggested deceivers used less self-referents. The results,instead, give support to the findings of Chapman (1976) which found an increased use of self-referents in deceptive language. These results suggest that deceivers have negative perceptions of others and may attempt to direct attention toward others. It also appears

that deceivers are less specific in their language use than non- deceivers. Since deceivers were asked to discuss events or situations that did not exist, it seemed more difficult for them to refer to specific people or groups of people when discussing nonexistent situations. Deceivers also had a tendency to use more first person pronouns than non-deceivers. This may have been a conscious or subconscious attempt to reassure others that what they were saying was accurate. Using first person pronouns may also have been a method of proving that particular experiences actually existed.

Research hypothesis 2 that truthful messages would differ significantly in sensation unit density than deceptive messages was not supported. These results do not support the Chapman (1976) study which found increased use of sensation language in deceptive messages. One factor that could have contributed to the conflicting results may have been the analysis of different contextual settings. Chapman (1976) analyzed Nixon's Watergate testimony. During cross-examinations participants answer questions about specific events in the past, whereas during employment interviews, participants answer questions about the past, present, and future.

Research hypothesis 3 was supported. The results indicated significant differences between truth and deception in existential density. Truthful messages were found to use significantly more negation with subjects and objects of verbs than deceptive messages. These results give partial support the the Knapp, et al. (1974) and Kraut (1978) studies which suggested that deceivers used more allness terms (generalizations) and gave less plausible answers than non-deceivers.

The truthful interviewees seemed to discuss more of what they did not like in people and situations, while the deceptive interviewees seemed to be more positive about topics discussed. Deceivers may have tried a more positive approach in an attempt to improve their chances of securing a job.

Research hypotheses 4 and 5 were not supported. There were no significant differences indicated between truthful and deceptive responses for undefined relational density or for motion density. These results do not support the Burgoon and Miller, (1971) and Daly and Miller (1975) findings that high intensity messages during stressful conditions increase relational densities or the use of more active verbs. This discrepancy may be a function of the questions asked and the type of interview setting, rather

than the level of intensity. Since the interviewees were not actually applying for a job, they may have been less inclined to exhibit stress by high intensity language usage.

Research hypothesis 6 that truthful messages would be significantly different than deceptive messages in past time densities than truthful messages was supported. There was an interaction effect between the sex, mode, and condition. The results support the findings of Knapp, et al. (1974) which found fewer past tense verbs in deceptive messages. It appears that deceptive messages were characterized predominantly by present and future tense verbs. Since deceivers had no reference points from the past, it may have been more difficult for them to use past tense verbs.

Research hypothesis 7 was not supported. The results suggested no significant differences between truthful and deceptive messages for dispositional language usage. Sentences in the subjunctive mood and/or sentences in the form of a question did not differ significantly between the conditions. These results do not support the Kraut (1978) study which found less plausible responses in deceptive communication. Again, one reason for the contradictory results may have been that deceivers and non-deceivers both consciously attempted to make favorable impressions. Increased awareness about the consequences of being detected

during deception may have increased the plausibility of their responses.

Research hypothesis 8 was also not supported. The results failed to support research suggesting that deceptive messages contain fewer words than truthful messages (Mehrabian, 1971; Motley, 1974; Knapp, et al., 1974). In fact the results indicated an inverse relationship for the predicted total word usage. Situational differences may have been one of the factors accounting for the conflicting results. During employment interviews, these deceivers attempted to make favorable lasting impressions. It appears that deceivers needed to use more words to support their ideas than non-deceivers. The increased word usage may have also been influenced by increased motivation on the part of the interviewees. Since the deceptive interviewess wanted to create positive impressions, they may have felt a need to keep the conversation alive.

Research hypothesis 9 was supported. The MDA results identified 6 variables that discriminated between truth and deception. The five variables identified as the best discriminators of deception were: positive existential density, total word usage, positive audience perception, defined relational density, and negative authority perception. Past time density was found to be the best.

discriminator of truthful messages.

The results of this study give support to the findings of Knapp, et al. (1974) and Todd (1976) which found increased usage of disparaging words in deceptive messages. The results also support the Knapp, et al. (1974) findings which indicated more other references in deceptive messages and more past tense references in truthful messages. Negative references about others seems to be an attempt to place attention and the locus of control on others. As mentioned previously, less use of past tense verbs is also probably a function of there being nonexistent reference points.

During the employment interview situation, deceptive responses were characterized by greater total word usage, negated second person pronouns, positive first person pronouns, negated existential references, and positive generalized other references. They were also characterized by fewer group references and fewer past tense verbs. The absence of specific group references and past tense verbs seems to indicate that deceptive responses were less specific than truthful responses. Even though the deceptive responses were longer than the truthful responses, deceptive responses tended to be more generalized and abstract than truthful responses. Increased use of first person pronouns

seemed to be a function of interviewees trying to prove events actually existed.

The statistical analysis rejected Null Hypothesis 2. The results indicated that truthful messages would be characterized by significantly different linguistic indices than deceptive messages.

Males and Females

Research hypothesis 1 was not supported. The analysis of variance did not find significantly fewer total word usage for male responses. However, Duncan's multiple range test did indicate significant differences between male and female responses. These results may have been influenced by time constraints placed on the subjects. During written interviews subjects were given up to 30 minutes to answer the questions. Since most of the subjects used the allotted time, the experimenter's time restrictions may have minimized the differences between males and females. During the oral interview, Ss were given as much time as they needed to answer the questions. Differences between the sexes may have been reduced by self-imposed time restraints

to do well.

Research hypothesis 2 was supported. Results from the MDA identified 10 variables that discriminated between male and female responses. The analysis identified five SLCA variables as the best discriminators of male and female responses. The results indicated that male responses were characterized by significantly greater use of positive second person pronouns, positive subjects and objects of verbs, positive unspecific references to people or groups of people, negation of second person pronouns, and verbs and verb phrases which did not have noun objects of the verbs. Female responses were characterized as having greater overall total word usage, nouns without qualifiers, negated verbs, sensed modifiers, and sensed subjects and objects of verbs.

The results suggest that during the employment interview condition, males use more second person pronouns and positive references to others and objects in the environment than females. One factor which could have contributed to the increased use of both positive and negative second person pronouns was the sex of the interviewer. Since the interviewers were males, the male interviewees may have been able to establish relationships more quickly. The collective use of "you" may have been

used to establish rapport. The results also suggest that males gave greater importance to others and objects in the environment than females during the employment interview situation.

Female responses were characterized by significantly more total words, sensed qualifiers and nouns, verbs without qualifiers, and negated verbs. The results suggest that female interviewees structure their worlds in terms of concrete people, places, and things. Yet, females also used significantly more negated verbs and verbs without qualifiers than males. The frequent use of not and un before verbs may indicate tht female interviewees are more likely to discuss personal weaknesses (I do not know) as well as what they did and did not prefer than males.

The results identified distinct differences between the language of males and females during the employment interview situation. This study supports the suggestion that sex differences may confound the results of deception research (Todd-Mancillas & Kibler, 1979; DePaulo & Rosenthal, 1979). The results of this study also give support to the Mehrabian (1971) and McClintock and Hunt (1975) studies which found sex differences in behavior emitted during deception.

The statistical analysis rejected Null Hypothesis 3. The results suggested that male responses are characterized by significantly different linguistic indices than female responses.

Questions

Research hypothesis 1 was supported. There were significant differences in the total number of words subjects used to answer the four interview questions. The subjects used the greatest total number of words for Question 4 which was asked in the form of a conditional question. Based on the results, it seems that Question 4 was the easiest question for the subjects to answer. Explanations for the relative ease of Question 4 could be attributed to the fact that there were no right or wrong answers, the topic was one that many people have thought about, and it encouraged the use of imaginative responses. Question 1 used the second highest total number of words. This question asked about the past. Since the subjects had specific reasons for attending Louisiana State University, it should have been less difficult for the deceivers and non-deceivers to answer. Both deceivers and non-deceivers

had specific reference points by which to answer this question.

Question 2, phrased to be answered in the present tense, used the third highest total number of words. The results suggest that Question 2 was more difficult to answer than Questions 4 or 1. Since the wording of the question forced the subjects to choose between options, it may have been difficult for the subjects to make immediate decisions about how to respond. This question was also probably one that most subjects had not thought about before the interview. The question using the least total number of words was Question 3. This question was probably the most difficult to answer because it asked subjects to make specific predictions about their futures. Many subjects, particularly ones not graduating, probably had not thought about their future potential.

Research hypothesis 2 was also supported. The MDA identified 19 SLCA variables which discriminated between the four interview questions. One variable, symmetric relation density, was found to discriminate between Questions 1 and 2. One variable, positive generalized other perception, was also found to discriminate between Questions 2 and 3. Two variables discriminated between Questions 1 and 3. They were: Total word usage and inanimate perception. The

remaining 15 variables discriminated between Questions 3 and 4. The varaibles were: verbs in the indicative mood, future tense verbs, negated specific persons or groups of persons, frequency of verbs and verb phrases, negated (GO) perceptions, sensed qualifiers, present tense verbs, positive (GO) perceptions, non-sensed qualifiers, non-sensed subjects and objects of verbs, positive qualifiers associated with nouns and verbs, negated second person pronouns, positive specific person or group of persons references, and active verbs.

Responses for Question 2 were characterized by having significantly more verbs and verb phrases with noun objects. The results indicated that the responses for Questions 1 and 2 had different structual properties. When communicating in the present tense, subjects tended to use more nouns as objects of verbs and verb phrases. Question 2 and 3 responses differed in the use of nouns and pronouns that referred to unspecific persons or groups of persons. It would have seemed that Question 3 responses would have used greater generalized other perception since it was phrased to be answered in the future tense. However, Question 2 responses contained significantly more references to generalized others. The difficulty of answering Question 2 could have influenced the results.

Question 1 responses were discriminated from Question 3 responses in the total number of words and the number of subjects and objects of verbs which referred to inanimate objects. The results suggest that responses referring to past events were easier to elaborate about than future events. The semantics of the question could have also affected the use of subjects and verbs referring to inanimate objects in responses to Question 1. The results suggest that these subjects were less likely to identify specific people in helping with college attendance decisions. The subjects may have thought that indicating dependence on others would hinder their hiring potential.

The MDA results identified 7 variables that were the best discriminators of Question 3 responses and 8 variables that were the best discriminators of Question 4 responses. Question 3 responses were significantly higher in indicative mood verbs, negated references to specific persons or groups of persons, sensed qualifiers, present tense verbs, non-sensed qualifiers, positive qualifiers, and positive references to specific persons or groups of persons. Even though question 4 asked about the future, the results suggest that the responses to Question 3 were discussed with significantly more present tense verbs than Question 4. Yet, Question 3 responses did use greater indicative mood verbs such as ought to or could be. As discussed

previously, the relative difficulty of the questions could have influenced the results. Questions 3 was also identified by the use of more qualifiers (sensed and nonsensed) than Question 4. The uncertainty about about future events seemed to have contributed to increased us of qualifications.

Question 4 responses were significantly higher in the presense of future tense verbs, verbs, positive and negated generalized other perceptions, negated verbs, non-sensed nouns, negated second person pronouns, and active verbs. Th results suggest that Question 4 responses were characterized by significantly more verbs than Question 3 responses. Question 4 seemed to encourage the use of more active verbs, future tense verbs, negated verbs, and verbs. The conditional phrasing seemed to encourage active, imaginative language use. Asking about the "perfect" job also seemed to increase the use of positive and negative references to unspecific persons or groups of persons. Because of the open-ended questioning it seems as though the subjects were more likely let down artificial barriers and to give both their positive and negative views.

The statistical analyses rejected Null Hypothesis 4. The results identified significant differences between the question responses.

The results from the statistical analysis rejected the Null Hypotheses. Deceptive responses were identified as having significantly greater total words, positive existential densities, negative authority perceptions, positive audience perceptions, and defined relational densities than truthful responses. Deceptive responses were also characterized by less past time density, negative self-perceptions, negative existential densities, and negative generalized other perceptions than truthful responses. Comparing these results with the results of the oral and written and male and female analyses revealed several interesting relationships. Deceptive and written responses were both characterized by significantly more negative authority perceptions and total word usage. On the other hand, deceptive and oral responses were characterized by significantly more positive audience perceptions, and defined relational densities. The results also suggested that females would be more likely to use more total words when writing deceptively, whereas males would be more likely to use more positive audience perceptions when speaking deceptively. The results from the statistical analyses provide a foundation for continued research studying deception. The linguistic indices identified in this study provide information about the language profiles of deceptive communicators.

Implications

Syntactic Language Computer Analysis (SLCA III) has provided communication theorists with a valuable tool for isolating linguistic indices of truthful and deceptive messages. Through language analysis, an individual's underlying cognitive and motivational states can be explored. Previous research suggests that particular linguistic variables distinguish truth from deception. By using SLCA, researchers have found specific relationships that exist between oral and written truthful and deceptive messages during employment interviews.

This study was designed to find preliminary information concerning differences between oral and written linguistic indices of deception during employment interviews. The findings of this study indicate that SLCA is effective in studying linguistic indices of deception. Although SLCA is an effective measuring instrument, a few methodological refinements would increase the accuracy of the results of this and future studies.

Equal cell sizes would have also increased the accuracy of the results. Equal cell sizes might have produced data which demonstrated trends that were not indicated in the

statistical analyses. Equal numbers of subjects would also produce data more representative of the total population of interviewees.

One refinement that could increase the accuracy of the results would be to have a combination of measuring instruments. Along with SLCA and question rating scales, additional instruments needed to measure such variables as the degree of ego-involvement, and self-monitoring ability. Testing ego-involvement could be used to help explain the increased use of first person pronouns. Self-monitoring scales might help explain differences in deceiver ability levels. Additional instruments could give more accurate profiles of deceptive communicators.

Another improvement would be to eliminate role-playing during deceptive responses. A pretest questionnaire could have solicited information about each subject. The questionnaire results could have then been used in the design of the interview questions. The results could help identify individuals who would be most likely to deceive during employment interviews.

A final improvement would have been to control for the difficulty of the interview questions. Again, pretest questionnaire results could have been useful in determining the difficulty level of the specific questions.

Investigating question difficulty might help account for some of the differences in the questions' total word usage.

Along with the refinements just discussed, further research is needed. This study supported the conclusions of previous deception research that found fewer group references, fewer past tense verbs, fewer other references, greater existential density, greater negative audience perception, and more self-referents in deceptive language. This study did not support the research conclusions that found less self-referents, greater sensed language usage, more active verbs, and fewer total word usage in deceptive communication.

The need and potential for further research studying deceptive language during employment interviews and other interactions is overwhelming. By examining the linguistic indices of deceptive responses, more can be learned about: (1) differences in deceptive language as a function of topics discussed; (2) differences between effective and ineffective deceivers; (3) differences between undergraduates and other career classes of individuals (i.e., high school graduates, professionals) during interviews; (4) differences between the use of lies for self-aggrandizement during other types of interview situations (i.e., counseling, appraisal); and (5)

differences in deceivers' use of humor during deception. These and other research directions need to be investigated if more is to be learned about deceptive communication.

References

Baskett, G.D., & Freedle, R.O. Aspects of language pragmatics and the social perception of lying. Journal of Psycholinguistic Research, 1774,3,117-131.

Bauchner, J., Brandt, B.R., & Miller, G.R. The truth/deception attribution: Effects of varying levels of information availability. In B.D. Rubin (Ed.), Communication Yearbook I. New Brunswick: Transaction books, 1977.

Bauchner, J.E., Kaplan, E.A., & Miller, G.R. Detecting deception: The relationship of available information to judgemental accuracy of initial encounters. Human Communication Research, 1980, 6, 253-264.

Blum, R.H. Deceivers and deceived. Springfield, Illinois: Charles C. Thomas, 1972.

Bowers, J. W. Language intensity, social introversion, and attitude change. Speech Monographs, 1963, 30, 345-352. Bowers, J.W., Elliott, N.D., & Desmond, R.J. Exploiting pragmatic rules: Devious messages. Human Communication Research ,1977,3, 235-242.

Bradac, J., Bowers, J.W., & Courtright, J. Three

language variables in communication research: Intensity, immediacy, and diversity. Human Communication Research, 1979,5, 257-269.

Brandt, D.R., Miller, G.R., & Hocking, J.E. Effects of self-monitoring and familiarity on deception detection. Communication Quarterly, 1980,28, 3-10.

Burgoon, M. & Miller, G.R. Prior attitude and language intensity as predictors of message style and attitude

Carr, S.J. & Dabbs, J.M. The effects of lighting, distance, and intimacy of topic on verbal and visual behavior. Sociometry, 1974, 37,592-600.

Chapman, D.W. The rhetoric of deception: Nixon and watergate. Paper presented at the undergraduate honors seminar sponsored by Speech Communication Association, DePaul University, 1976.

Corcoran, J.F.T., Lewis, M.D., & Garver, R.B. Biofeedback-conditioanal galvanic skin response and hypnotic suppression of arrousal: A pilot study of their relation to deception. Journal of Forensic Sciences, 1978, 23, 155-162.

Cummings, H.W., & Renshaw, S.L. SLCA III: A metatheoretical approach to the study of language. Human Communication Research, 1979, 5, 291-300.

Cutrow, R.J., Parks, A., Lucas, N., & Thomas, K. The objective use of multiple physiological indices in the detection of deception. Psycholophsiology, 1972,9, 578-588.

Davidson, P.O. Validity of the guilt-knowledge technique: The effects of motivation. Journal of Applied Psychology, 1968, 52, 62-65.

Day, D.A., & Rourke, B. P. The role of attention in "lie detection." Canadian Journal of Behavioural Science, 1974, 6, 270-276.

Dearman, H.B., & Smith, B.M. Unconscious motivation and the polygraph test. American Journal of Psychiatry, 1963, 119, 1017-1020.

DePaulo, R.M., Zuckerman, M., & Rosenthal, R. Humans as lie detectors. Journal of Communication, 1980, 30, 129-139.

Depaulo, B.M., & Rosenthal, R. Telling lies. Journal of Personality and Social Psychology, 1979, 37, 1713- 1722.

DePaulo, B.M., Rosenthal, R., Eisenstat, R.A., Rogers, D.L., & Finkelstein, S. Decoding discrepant nonverbal cues. Journal of Personality and Social Psychology, 1978, 36, 313-323.

DePaulo, B.M., Zuckerman, R., & Rosenthal, R. The deceptions of everyday life. Journal of

Communication, 1980, 30, 209-216.

Devito, J.A. A linguistic analysis of spoken and written language. Central States Speech Journal, 1967, 18, 81-85.

Ekman, P., & Friesen, W.V. Nonverbal leakage and clues of deception. Psychiatry, 1969, 63, 88-106.

Ekman, P., & Friesen, W.V. Hand movements. Journal of Communication, 1972, 22, 353-374.

Ekman, P., & Friesen, W.V. Detecting deception from the body and face. Journal of Personality and Social Psychology, 1974, 29, 288-298.

Ekman, P., Friesen, W.V., & Scherer, K.R. Body movement and voice pitch in deceptive interaction. Semiotica, 1976, 16, 23-27.

Elliott, G.C. Some effects of deception and level of self-monitoring on planning and reacting to a self-presentation. Journal of Personality and Social Psychology, 1979, 37, 1282-1292.

English, H. Reaction-time symtoms of deception. American Journal of Psychology, 1926,37, 428-429.

Fay, P.J., & Middleton, W.C. The ability to judge truthtelling, or lying, from the voice as transmitted over a public address system. Journal of General Psychology, 1941, 24, 211-215.

Feldman, R.S. Nonverbal disclosure of teacher

deception and interpersonal affect. Journal of Educational Psychology, 1976,68, 807-816.

Geizer, R.A., Rarick, D.L., & Soldow, G.F. Deception in judgement accuracy: A study in person perception. Personality and Social Psychology Bulletin, 1977,3, 446-449.

Gibson, J.W., Gruner, C.R., Kibler, R.J., & Kelly, F.J. A quantitative examination of differences and similarities in written and spoken messages. Speech Monogrpahs, 1966, 33, 444-451.

Greenberg, B.S. & Tannenbaum, P.H. Communicator performance under cognitive stress. Journalism Quarterly,1962,39,168-178.

Greenglass, E.R. Effects of age and prior help on "altruistic lying." Journal of Genetic Psychology, 1972, 121, 303-313.

Griffitt, W. Environmental effects of interpersonal affective behavior: Ambient effective temperature and attraction. Journal of Personality and Social Psychology, 1970, 15, 240-244.

Griffitt, W. & Veitch, R. Hot and crowded: Influence of population density and temperature on interpersonal affective behavior. Journal of Personality and Social Psychology, 1971, 17, 92-98.

Gustafson, L.A., & Orne, M.R. Effects of heightened motivation on the detection of deception. Journal of Applied Psychology, 1963, 43, 408-411.

Gustafson, L.A. & Orne, M.R. The effects of task and methods of stimulus presentation on the detection of deception. Journal of Applied Psychology , 1965, 49, 412-417.

Hample, D. Purposes and effects of lying. Southern Speech Communication Journal, 1980, 46, 33-47.

Harper, R.G., Wiens, A.N., & Matorazzo, J.D. Nonverbal communication: State of the art. New York: John Wiley and Sons, 1978.

Harrison, A.A., Hwalik, M., Raney, D.F., & Fritz, J.G. Cues to deception in an interviw situation. Social Psychology, 1978, 41, 156-61.

Hart, R.P. Absolutism and situation: Prolegomena to a rhetorical bibliography of Richard M. Nixon. Communication Monographs, 1976, 43, 204-228.

Hocking, J.E., Bauchner, J., Kaminski, E.P., & Miller, G.R. Detecting deceptive communication from verbal, visual, and paralinguistic cues. Human Communication Research, 1979,6, 33-46.

Hocking, J.E., & Leathers, D. Nonverbal indicators of deception: A new theoretical perspective. Communication Monographs, 1980, 47, 119-131.

Horvath, F. An experimental comparison of the psychological stress evaluator and the galvanic skin response in the detection of deception. Journal of Applied Psychology, 1978, 63, 338-344.

Horvath, F.S. Verbal and nonverbal clues to truth and deception during polygraphic examinations. Journal of Police Science & Administration, 1973,1, 138-152.

Johnson, W. People in quandaries. New York: 1946.

Kasl, W.V., & Mahl, G.F. The relationship of disturbances and hesitations in spontaneous speech to anxiety. Journal of Personality and Social Psychology, 1965,1, 425-433.

Knapp, M. 7 Comadena, M. Telling it like it isn't: A review of theory and research on deceptive communication. Human Communication Research, 1979,6, 270-285.

Knapp, M., Hart, R., & Dennis, H. An exploration of deception as a communication construct. Human Communication Research, 1974,1, 15-29.

Kraut, R. E. Verbal and nonverbal cues in the perception of lying. Journal of Personality and Social Psychology, 1978, 36, 380-391.

Kraut, R.E. Humans as lie detectors: Some second thoughts. Journal of Communication, 1980, 30,

209-216.

Littlepage, G., & Pineault, R. Verbal, facial, and paralinguistic cues to the detection of truth and lying. Personality and Social Psychology Bulletin, 1978,4, 461-464.

Luria, A.R. The nature of human conflicts. New York: Liveright, 1932.

Lykken, D.T. Psychology and the lie detector industry. American Psychologist, 1974, 29, 725-739.

Lykken, D.T. The detection of deception. Psychological Bulletin, 1979, 86, 47-53.

Mahl, G.F. Disturbances and silences in patients' speech in psychotherapy. Journal of Abnormal and Social Psychology, 1956, 53, 1-15.

Mahl, G.F. Exploring trends in content analysis. Ithiel Poole (Ed.) Urbana, Ill.: University of Illinois Press, 1959.

Maier, N.R.F. Sensitivity to attempts at deception in an interview situation. Personnel Psychology, 1966, 19, 55-65.

Maier, N.R.F. & Thurber, J.A. Accuracy of judgements of decepton when an interview is watched, heard, and read. Personnel Psychology, 1968, 21, 23-30.

Maier, N.R.F. & Janzen, C. The reliability of reasons used in making judgements of honesty and

dishonesty. Perceptual and Motor Skills, 1967, 25, 141-151.

Maier, R.A., & Lavrakes, P.J. Lying behavior and evaluation of lies. Perceptual and Motor Skills, 1976, 42, 575-581.

Matarazzo, J., Wrens, A., Jackson, R., & Manaugh, T. Interviewer speech behavior under conditions of exogenously-present and exogenously-induced motivational states. Journal of Clinical Psychology, 1970, 26, 141-148.

McClintock, C., & Hunt, R. Nonverbal indicators of affect and deception in an interview setting. Journal of Applied Social Psychology, 1975, 5, 54-67.

Mehrabian, A. Nonverbal betrayal of feeling. Journal of Experimental Research in Personality, 1971, 5, 54-67.

Miller, G.R. Variations in the verbal behavior of a second speaker as a function of varying audience responses. Speech Monographs, 1964, 31, 109-115.

Miller, G.R. & Steinberg, M. Between people: A new analysis of interpersonal communication. Chicago: Science Research Associates, 1975.

Morris, C.W. Foundations of the theory of signs. In Neurath, O., Carhap, R., and Morris, C.W. (Eds.)

International encyclopedia of unified science. Chicago: University of Chicago Press, 1938.

Motley, M. Acoustic correlates of lies. Western Speech Journal, 1974 38, 81-87.

Newman, J.B. Symtomatic signals in speaking and writing. Western Speech Journal, 1969, 33, 40-44.

Orne, M.T., Thackray, R.I., & Paskewitz, D.A. On the detection of deception. In N.S. Greenfield & R.A. Sternback (Eds.) , Handbook of Psychophysiology. New York: Holt, Rinehart, & Winston, 1972.

Podlesny, J.A., & Raskin, D.C. Physiological measures and the detection of deception. Psychological Bulletin, 1977, 84 , 782-799.

Raskin, D.C. & Podlesny, R.A. Truth and deception: A reply to Lykken. Psychological Bulletin, 1979, 86. 54-59.

Sacks, H. Everyone has to lie. In M. Sanches and B.G. Blout (Eds.) Sociocultural Dimensions of Language Use. New York: Academic Press, 1975.

Snyder, M. The self-monitoring of expressive behavior. Journal of Personality and Social PSychology, 1974 30 526-547.

Streeter, L.A., Krauss, R.M., Geller, V. Olson, C., & Apple, W. Pitch changes during attempted

deception. Journal of Personality and Social Psychology, 1977, 35, 345-350.

Thackery, R.I., and Orne, M. Effects of the type of stimulus employed and the level of subject awareness on the detection of deception. Journal of Applied Psychology, 1968, 52, 234-239.

Todd, W.B. Linguistic indices of deception as manifested by women: A content analytic study. Unpublished doctoral dissertation, Florida State University, 1976.

Todd-Mancillas, W. & Kibler, R.J. A test of concurrent validity for linguistic indices of deception. Western Speech Journal, 1979, 43, 108-122.

Weiner, M., & Mehrabian, A. Language within language:: Immediacy a channel in verbal communication. New York: Appleton-Century-Crofts, 1967.

Zuckerman, M., DeFrank, R.S., Hall, J.A., and Lawrence, D.T. Facial and vocal cues of deception and truth. Journal of Experimental Social Psychology, 1979, 15, 378-396.

Zweigenhaft, R. Personal space in the faculty office: Desk placement and the student-faculty interaction. Journal of Applied Psychology, 1976, 61,529-532.

APPENDIX A

Oral Instructions

Truthful Condition

During the next few years, you will participate in one of the most common forms of communication, the job interview. Research has found that the best way to prepare for a job interview is to get actual interviewing experience. By participating in this study, you will get interview experience.

Company recruiters have found that many applicants conceal, distort, or fabricate information during interviews. These deceptive responses cause some applicants to be placed in jobs they are unqualified or suited for and often cause dissatisfaction for employers and employees. Because of this mutual dissatisfaction, organizations are interested in finding ways to encourage truthful responses from applicants.

Organizations are now experimenting with different methods of screening applicants. One method of screening is the oral interview. We are attempting to find ways of improving the oral interview process. For this reason, we need examples of both truthful and deceptive responses to interview questions.

Today you will be asked questions by recruiters receiving speical training in new interview techniques. Your responses will influence employment interviews in the future. The questions used are ones typically asked during job interviews here on campus. For the purpose of this study you are to give truthful answers to all questions. Unlike most interview situations, the recruiter will not have a copy of your resume in front of him. He will have to rely on his own interviewing skills to get the information he needs. The recruiter wi know whether or not you are giving truthful or deceptive answers. You should try to be as convincing as possible while telling the truth.

Since most applicants prepare themselves for interviews by evaluating their educational backgrounds, work experience, strengths, and weaknesses, you will have 10 minutes to think about your backgrounds, types of interview questions, and how you might answer the questions truthfully. All your responses will be video-taped and

recorded.

Do you have any questions?

(10 Minute Contemplation Period)

You will have as much time as you need to answer the questions. Remember, you are trying to get a job and to make a good first impression.

Deceptive Condition

During the next few years, you will participate in one of the most common forms of communication, the job interview. Research has found that the best way to prepare for the job interview is to get actual interviewing experience. By participating in this study, you will get interview experience.

Company recruiters have found that many applicants conceal, distort, or fabricate information during interviews. These deceptive responses cause some applicants to be placed in jobs they are unqualified or suited for and often cause dissatisfaction for employers and employees. Because of this mutual dissatisfaction, organizations are interested in finding ways to encourage truthful responses from applicants.

Organizations are now experimenting with different methods of screening applicants. One method of screening is the oral interview. We are attempting to find ways of improving the oral interview process. For this reason, we need examples of both truthful and deceptive responses to interview questions.

Today you will be asked questions by recruiters receiving special training in new interview techniques. Your responses will influence employment interviews in the future. The questions used are ones typically asked during job interviews here on campus. Although we don't expect you to deceive in an actual interview, for the purposes of this study you are to give deceptive answers for all questions. You are to deliberately think of ways to answer the questions differently than you would in a truthful interview.

There are of course different degrees and methods of deception. In this situation we want your deceptive comments to enhance or improve your positive qualities and ability to get a job. For example, telling an interviewer that you have three brothers and sisters when you actually have none probably wouldn't improve your chances of getting a job, whereas telling an interviewer that you have never been fired when you actually have probably would improve your job chances.

Unlike most interview situations, the recruiter will not have a copy of your resume in front of him. He will have to rely on his own interviewing skills to get the information he needs. The recruiter will not know whether you are giving truthful or deceptive responses. You should

try to be as convincing as possible while being deceptive. Remember, if an interviewer knew you were trying to deceive him, you wouldn't get the job.

Since most applicants prepare themselves for interviews by evaluating their educational backgrounds, work experience, strengths and weaknesses, you will have ten minutes to think about your backgrounds, types of interview questions, and how you might answer the questions deceptively. All your responses will be video-taped and recorded.

Do you have any questions?

(10 Minute Contemplation Period)

You will have as much time as you need to answer the questions. Remember, even though you are giving deceptive responses, you are trying to get a job and to make a good first impression.

First Interviewer Instructions

Good afternoon, my name is . Please place your belongings here. I work for Amalgamated Industries. Please come in and have a seat. Before we begin, let me tell you a little about our company. Amalgamated Industries (or A.I.), a Fortune 500 Company, has been in existence for almost 50 years. Currently, on the New York Stock Exchange, A.I. specializes in producing small business machines and office equipment. A recent move of A.I.'s corporate offices to Atlanta, Georgia has created several new entry level positions in mangement, marketing, accounting, and computer science. Now to help me get to know you better, let me ask you a few questions. (Questions assigned in random order.)

It has really been good talking with you. I really do not need to ask you any additional questions since we will be getting your resume, application, and letters of recommenation shortly. You seem to compete well with the other applicants and should be hearing from me within the next two weeks. Thank you for coming and I will see you out.

**Interviewers should ask no addtional questions unless the subject runs out of things to say. If a subject does run out of things to say, you should wait at least three seconds before asking short open-ended questions such as "Is there anything else you would like to add?" You should be nonverbally encouraging for all answers (head nods, smiles when appropriate, etc.).

Second Interviewer Instructions

Truthful Condition

(Each subject is asked to complete a rating form.)

In the interview in which you participated, you were asked to answer four interview questions deceptively. Now we would like for you to answer the same questions truthfully.

How would you answer question one? question two? question three? question four? Thank you.

As you were told earlier, one of the purposes of this study is to find methods of improving oral interviews. You may be wondering about other purposes. One of us will come to Dr. Smeltzer's class to explain the procedures and to answer your questions after everyone has participated in the study. Because knowledge about our study would affect the results, please do not discuss what you have done with

anyone in your classes until after we have come to speak to your class.

We appreciate your time and participation. Hopefully, you have learned something about interviewing that will benefit you in the future. Thanks again.

**Interviewers should ask no additional questions unless the subject runs out of things to say. If a subject does run out of things to say, you should wait at least three seconds before asking short open-ended questions such as "Is there anything else you would like to add?" You should be nonverbally encouraging for all answers (head nods, smiles when appropriate, etc.).

Second Interviewer Instructions

Deceptive Condition

(Each subject is asked to complete a rating form.)

In the interview in which you participated, you were asked to answer four interview questions truthfully. Now we would like for you to answer the same questions deceptively. You are to deliberately think of ways to answer the questions differently than you would in a truthful interview.

There are of course different degrees and methods of deception. In this situation we want your deceptive comments to enhance or improve your positive qualities and ability to get a job. For example, telling an interviewer that you have three brothers and sisters when you actually have none probably wouldn't improve your chances at getting a job, whereas telling an interviewer that you have never been fired when you actually have probably would improve your job chances.

You will have two minutes to think about how you might answer the questions deceptively.

(2 Minute Contemplation Period)

Now that you have had some time to think, how would you answer question one? question two? question three? question four? Thank you.

As you were told earlier, one of the purposes of this study is to find methods of improving oral interviews. You may be wondering about other purposes. One of us will come to Dr. Smeltzer's class to explain the procedures and to answer your questions after everyone has participated in the study. Because knowledge about our study would affect the results, please do not discuss what you have done with anyone in your classes until after we have come to speak to your class.

We appreciate your time and participation. Hopefully, you have learned something about interviewing that will benefit you in the future. Thanks again.

**interviewers should ask no additional questions unless the subject runs out of things to say. If the subject does run out of things to say, you should wait at least three seconds before asking short open-ended questions such as "Is there anything else you would like to add?" You should be nonverbally encouraging for all answers (head nods, smiles when appropriate, etc.).

APPENDIX B

Written Instructions

Truthful Condition

During the next few years, you will participate in one of the most common forms of communication, the job interview. Research has found that the best way to prepare for a job interview is to get actual interviewing experience. By participating in this study, you will get interview experience.

Company recruiters have found that many applicants conceal, distort, or fabricate information during interviews. These deceptive responses cause some applicants to be placed in jobs they are unqualified or suited for and often cause dissatisfaction for employers and employees. Because of this mutual dissatisfaction, organizations are interested in finding ways to encourage truthful responses from applicants.

Organizations are now experimenting with different methods of screening applicants. One method of screening is a written interview. We are attempting to find ways of improving the written interview process. For this reason, we need examples of both truthful and deceptive responses to interview questions.

Today you will be asked questions by recruiters receiving special training in new interview techniques. Your respones will influence employment interviews in the future. The questions used are ones typically asked during job interviews on campus. For the purpose of this study, you are to give truthful answers to all questions. Unlike most interview situations, the recruiter will not have a copy of your resume in front of him. He will have to rely on his interview questions to get the information he needs. The recruiter will not know whether you are giving truthful or deceptive answers. You should try to be as convincing as possible while writing the truth.

Since most applicants prepare themselves for interviews by evaluating their educational backgrounds, work experience, strengths, and weaknesses, you will have 10 minutes to think about your background, types of interview questions, and how you might answer the questions truthfully.

Do you have any questions?

(10 Minute Contemplation Period)

Remember, you are trying to get a job and to make a good first impression.

Deceptive Condition

During the next few years, you will participate in one of the most common forms of communication, the job interview. Research has found that the best way to prepare for the job interview is to get actual interviewing experience. By participating in this study, you will get interview experience.

Company recruiters have found that many applicants conceal, distort, or fabricate information during interviews. These deceptive responses cause some applicants to be placed in jobs they are unqualified or suited for and often cause dissatisfaction for employers and employees. Because of this mutual dissatisfaction, organizations are interested in finding ways to encourage truthful responses from applicants.

Organizations are now experimenting with different methods of screening applicants. One method of screening is a written interview. We are attempting to find ways of improving the written interview process. For this reason, we need examples of both truthful and deceptive responses to interview questions.

Today you will be asked questions by recruiters receiving special training in new interview techniques. Your responses will influence employment interviews in the future. The questions used are ones typically asked during job interviews on campus. Although we don't expect you to deceive in an actual interview, for the purposes of this study you are to give deceptive answers for all questions. You are to deliberately think of ways to answer the questions differently than you would in a truthful interview.

There are of course different degrees and methods of deception. In this situation we want your deceptive comments to enhance or improve your positive qualities and ability to get a job. For example, telling an interviewer that you have three brothers and sisters when you actually have none probably wouldn't improve your chances of getting a job, whereas telling an interviewer that you have never been fired when you actually have probably would improve your job chances.

Unlike most interview situations, the recruiter will not have a copy of your resume in front of him. He will have to rely on his own interviewing questions to get the information he needs. The recruiter will not know whether you are giving truthful or deceptive responses. You should

try to be as convincing as possible while writing deceptively. Remember, if an interviewer knew that you were trying to deceive him, you wouldn't get the job.

Since most applicants prepare themselves for interviews by evaluting their educational backgrounds, work experience, strengths and weaknesses, you will have 10 minutes to think about your backgrounds, types of interview questions, and how you might answer the questions deceptively.

Do you have any questions?

(10 Minute Contemplation Period)

Remember, even though you are giving deceptive responses, you are trying to get a job and to make a good first impression.

First Interviewer Instructions

Good afternoon, my name .is Please place your belongings here. I work for Amalgamated Industries. Please come in and have a seat. Before we begin, let me tell you a little about our company. Amalgamated Industries is a Fortune 500 Compnay and has been in existence for almost 50 years. Currently on the New York Stock Exchange, A.I. specializes in producing small business machines and office equipment. A recent move of A.I.'s corporate offices to Atlanta, Georgia has created several new entry level positions in managment, marketing, accounting, and computer science. Now, to help me get to know you better, please answer these questions. You will have 30 minutes to answer the questions. Please write as legibly as you can.

(30 minutes or less for answering questions.)

Your time is up. Since we will be getting your resume, application, and letters of recommendation shortly, we do not need to ask you any additional questions. You should be hearing from me within the next two weeks. Thank you for coming and I will see you out.

Second Interviewer Instructions

Truthful Condition

(Each subject is asked to complete a rating form.)

In the interview you just completed, you were asked to answer four questions deceptively. Now we would like for you to answer the same questions truthfully. You are to be as convincing as possible while telling the truth. You will have up to twenty minutes to answer the questions.

(Maximum of 20 Minutes)

As you were told earlier, one of the purposes of this study is to find methods of improving written interviews. You may be wondering about other purposes. One of us will come to Mrs. Mayhan's class to explain the procedures and to answer your questions after everyone has participated in

the study. Because knowledge about our study would affect the results, please do not discuss what you have done with anyone in your classes until after we have come to speak to your class.

We appreciate your time and participation. Hopefully, you have learned something about interviewing that will benefit you in the future. Thanks again.

Second Interviewer Instructions

Deceptive Condition

(Each subject is asked to complete a rating form.)

In the interview you just completed, you were asked to answer four questions truthfully. Now we would like for you to answer the same questions deceptively. You are to deliberately think of ways to answer the questions differently than you would in a truthful interview.

There are of course different degrees and methods of deception. In this situation, we want your deceptive comments to enhance or improve your positive qualities and ability fo get a job. For example, telling an interviewer that you have three brothers and sisters when you actually have none probably would not improve your chance at getting a job, whereas telling an interviewer that you have never been fired when you actually have probably would improve your job chances. You should try to be as convincing as possible while being deceptive. You will have two minutes

to think about how you might answer the questions deceptively.

(2 Minute Contemplation Period)

You will have up to twenty minutes to answer the questions.

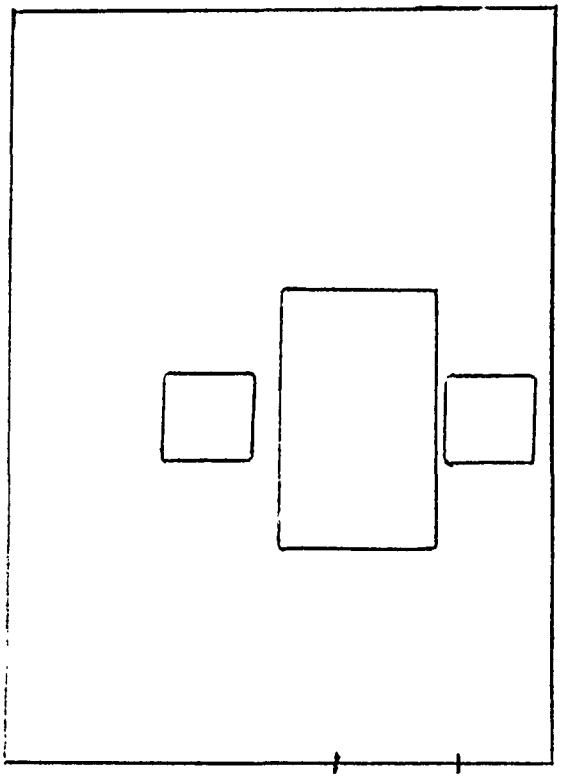
(Maximum of 20 Minutes)

As you were told earlier, one of the purposes of this study is to find methods of improving written interviews. You may be wondering about other purposes. One of us will come to Mrs. Mayhan's class to explain the procedures and to answer your questions after everyone has participated in the study. Because knowledge about our study would affect the results, please do not discuss what you have done with anyone in your classes until after we have come to speak to your class.

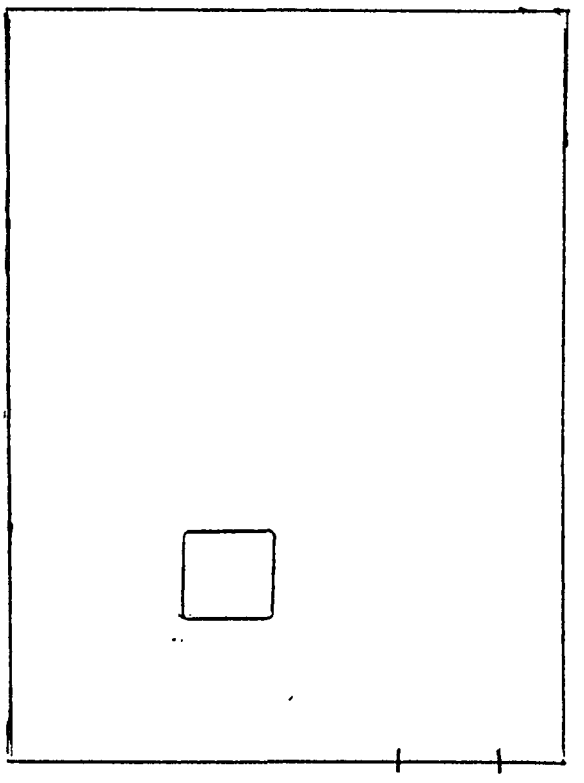
We appreciate your time and participation. Hopefully, you have learned something about interviewing that will benefit you in the future. Thanks again.

APPENDIX C

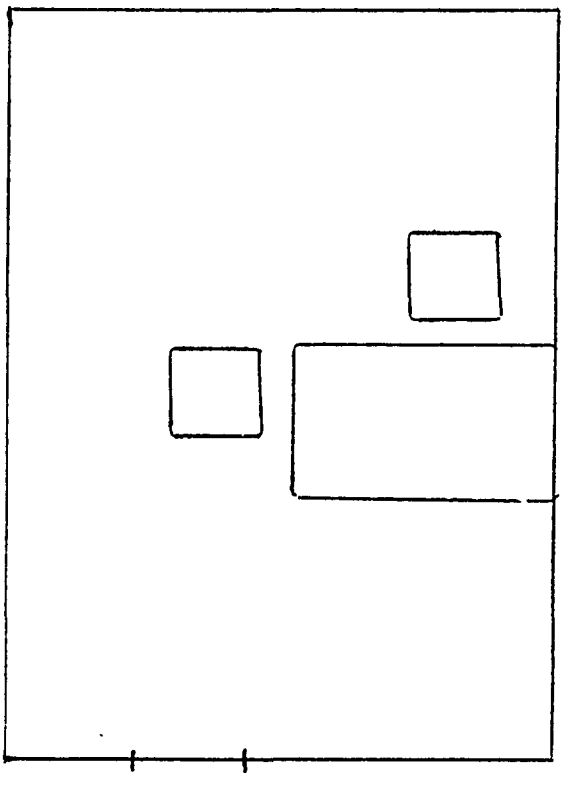
Room #1



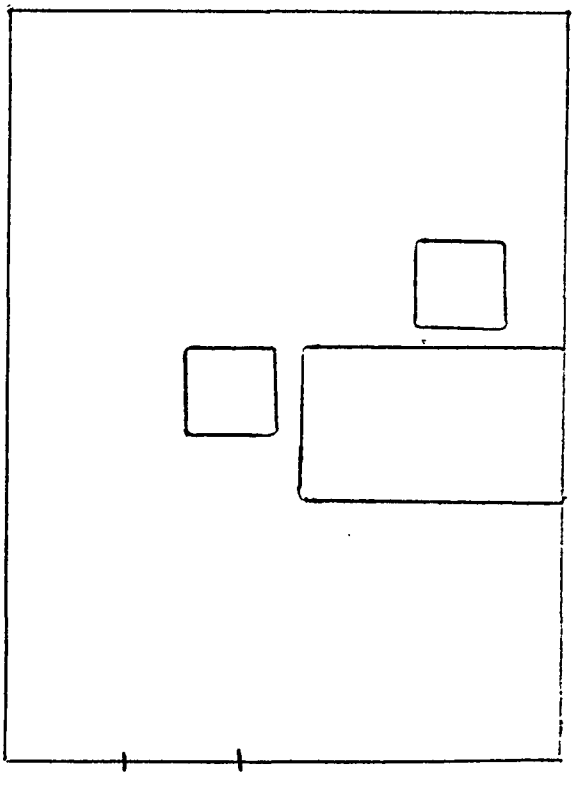
Room #2



Room #3



Room #4



Appendix D

Last 4 digits of your Social Security Number_____

Male_____ Female_____

During the interview, you were asked four questions in a random order. Based on your answers, please complete the following. (Circle the appropriate number)

QUESTION 1: What influenced you to attend Louisiana State University?

How many deceptive comments did you make?

1 2 3 4 5 6(other)

Answering this question was:

1 2 3 4 5 6 7 8 9 10
Very easy very difficult

On a continuum from absolute truth to absolute deception, where would you rate your answer?

1 2 3 4 5 6 7 8 9 10
Absolute Truth Absolute Deception

QUESTION 2: Do you work well under pressure? Explain.

How many deceptive comments did you make?

1 2 3 4 5 6(other)

Answering this question was:

1 2 3 4 5 6 7 8 9 10
very easy Very Difficult

On a continuum from absolute truth to absolute deception, where would you rate your answer?

1 2 3 4 5 6 7 8 9 10
Absolute Truth Absolute deception

QUESTION 3: What do you see yourself doing in five years?

How many deceptive comments did you make?

1 2 3 4 5 6(other)

Answering this question was:

1 2 3 4 5 6 7 8 9 10
very easy Very difficult

On a continuum from absolute truth to absolute deception, where would you rate your answer?

1 2 3 4 5 6 7 8 9 10
Absolute Truth Absolute deception

QUESTION 4: What would you do if you inherited a million dollars?

How many deceptive comments did you make?

1 2 3 4 5 6(other)

Answering this question was:

1 2 3 4 5 6 7 8 9 10
very easy Very difficult

On a continuum from absolute truth to absolute deception, where would you rate your answer?

1 2 3 4 5 6 7 8 9 10
Absolute Truth Absolute Deception

VITA

Kittie Wells Watson, daughter of Cody Usry and Bettie Todd Watson, was born in Newburgh, New York, on July 31, 1953. She was graduated from Thomson High School, Thomson, Georgia, in June, 1971. She entered Gainesville Junior College, Gainesville, Georgia, in September, 1971, and was graduated with an Associate Degree in Liberal Studies in June, 1973. She transferred to the University of Georgia, Athens, Georgia, in September, 1973, and received the degree of Bachelor of Science in Education in June, 1975. She entered Auburn University, Auburn, Alabama, in September, 1975, with a graduate teaching assistantship awarded by the Department of Speech Communication.

During March of 1977, she was graduated from Auburn University with a Masters of Arts Degree. After completing her degree, she accepted an Instructorship in the Department of Speech Communication at Auburn University where she taught for two years. In the Fall of 1979, she accepted an Instructorship in the Department of Theatre and Speech at Tulane University in New Orleans, Louisiana. At the same time she entered Louisiana State University, Baton Rouge, Louisiana, to work toward a Doctorate of Philosophy Degree in Speech Communication.

EXAMINATION AND THESIS REPORT

Candidate: Kittie Wells Watson

Major Field: Speech

Title of Thesis: Oral and Written Linguistic Indices of Deception During Employment Interviews

Approved:

J. Donald Ragsdale
Major Professor and Chairman

James D. Ingraham
Dean of the Graduate School

EXAMINING COMMITTEE:

John D. Pennington

John H. Patton

Perry B. Howard

Steven L. Rench

Date of Examination:

July 17, 1981